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Supplementary Table 1. Medline search strategy.

1. exp Diabetes Mellitus/
2. diabet$.tw,ot.
3. (IDDM or NIDDM or MODY or T1DM or T2DM or T1D or T2D).tw,ot.
4. (non insulin$ depend$ or noninsulin$ depend$ or non insulin?depend$ or noninsulin?depend$).tw,ot.
5. (insulin$ depend$ or insulin?depend$).tw,ot.
6. exp Diabetes Insipidus/
7. diabet$ insipidus.tw,ot.
8. or/1-5
9. 6 or 7
10. 8 not 9
11. exp Computer systems/
12. exp Computer/
13. exp Medical Informatics/
14. exp Multimedia/
15. exp Therapy, Computer-Assisted/
16. exp Image Processing, Computer-Assisted/
17. exp Biomedical Technology/
18. exp Computer-Assisted Instruction/
19. exp Computer communication networks/
20. exp Software/
21. exp Internet/
22. exp Hypermedia/
23. exp Telemedicine/
24. exp Video recording/
25. exp Drug Therapy, Computer-Assisted/
26. exp User-Computer Interface/
27. exp Medical Records Systems, Computerized/
28. exp Cellular phone/
29. exp Remote consultation/
30. ((computer-assist* or computer-based or web-based) adj6 (therap* or treatment* or education*)).tw,ot.
31. (computer* or Internet or hypermedia* or telecommunication*).tw,ot.
32. (interactive or online or on-line or telemedicin* or video record* or cellular phon* or mobil* phon*).tw,ot.
33. (multi-media or multimedia).tw,ot.
34. (cd-rom or compact-disc*).tw,ot.
35. (world wide web or worldwide web or website*).tw,ot.
36. electronic health*.tw,ot.
37. or/11-36
38. randomised controlled trial.pt.
39. controlled clinical trial.pt.
40. randomi?ed.ab.
41. placebo.ab.
42. drug therapy.fs.
43. randomly.ab.
44. trial.ab.

45. groups.ab.
46. or/38-45
47. Meta-analysis.pt.
48. exp Technology Assessment, Biomedical/
49. exp Meta-analysis/
50. exp Meta-analysis as topic/
51. hta.tw,ot.
52. (health technology adj6 assessment$).tw,ot.
53. (meta analy$ or metaanaly$ or meta?analy$).tw,ot.
54. ((review$ or search$) adj10 (literature$ or medical database$ or medline or pubmed or embase or cochrane or cinahl or psycinfo or psyclit or healthstar or biosis or current content$ or systemat$)).tw,ot.
55. or/47-54
56. (comment or editorial or historical-article).pt.
57. 55 not 56
58. 46 or 57
59. 10 and 37 and 58

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Supplementary Table 2. Taxonomy of behavior change techniques.

Behaviour change techniques
1 Provide information on consequences of behaviour in general
2 Provide information on consequences of behaviour to the individual
3 Provide information about others' approval
4 Provide normative information about others' behaviour
5 Goal setting (behaviour)
6 Goal setting (outcome)
7 Action planning
8 Barrier identification / Problem solving
9 Set graded tasks
10 Prompt review of behavioural goals
11 Prompt review of outcome goals
12 Provide rewards contingent on effort or progress towards behaviour
13 Provide rewards contingent on successful behaviour
14 Shaping
15 Prompt generalisation of target behaviour
16 Prompt self-monitoring of behaviour
17 Prompt self-monitoring of behavioural outcome
18 Prompt focus on past success
19 Provide feedback on performance
20 Provide information on where and when to perform the behaviour
21 Provide instruction on how to perform the behaviour
22 Model or demonstrate the behaviour
23 Teach to use prompts / cues
24 Environmental restructuring
25 Agree on behavioural contract
26 Prompt practice
27 Use follow-up prompts
28 Facilitate social comparison
29 Plan social support / social change
30 Prompt identification as a role model / position advocate
31 Prompt anticipated regret
32 Fear arousal
33 Prompt self-talk
34 Prompt use of imagery
35 Relapse prevention / coping planning
36 Stress management
37 Emotional control training
38 Motivational interviewing
39 Time management
40 General communication skills training
41 Stimulate anticipation of future rewards

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Supplementary Table 3. Description of interventions and controls used in included studies.

Study	Intervention(s)	Control(s)
	duration, intensity, frequency	*duration, intensity, frequency*
Christian 2008	A computer-based assessment of their motivational readiness to increase physical activity and make dietary changes. The program solicited information on usual dietary habits and awareness of the role of diet and exercise in the management of diabetes. On completion of the assessment, the computer expert system generated a 4- to 5-page individualized, tailored report, which provided feedback addressing participant-identified barriers to improving their physical activity and diet.	Patients were given a packet of health education materials at the baseline visit addressing diabetes, diet and exercise. Therafter they completed their regular clinic visit with their usual physician but had no additional prompts or motivational interviewing from their physicians regarding their specific goals for weight or physical activity other than what they might receive during usual care.
	One 10 minute assessment and then 4 meetings with physicians for 12 months.	*3 monthly visits at 0, 3, 6, 9 and 12 months.*
Glasgow 1997	Initial assessment the same as control group. In addition, patients completed a 5-10 minutes touch screen dietary barriers assessment that immediately generated two printed feedback forms: (1) for the patient, likely problem situations to plan for concerning diet and (2) an assessment summary for the physician. Patients with higher self-efficacy levels received a "take-home" video that addressed strategies for the most frequent type of barriers they experienced. Patients with lower self-efficacy levels returned for a 30 minute interactive video, operated via touch screen system. Telephone follow-up at 1 and 3 weeks provided an opportunity to review patient progress. This intervention sequence was repeated at a 3 month follow-up visit. At 6 months, participants received a final phone call and at 9 months a copy of the book "The human side of diabetes".	Computerised assessment via touch screen - variables assessed were 1. dietary stage of change, 2. Summary of Diabetes Self-Care scale,, 3. brief 3 or 4 item scales to assess personal models of diabetes, 4. Beliefs about the seriousness of diabetes and importance of treatment, 5. Desire for participation in diabetes management through shared control scale of the Multidimensional Desire for Control Scales, 6. Weight, 7. Food Habits Questionnaire, 8. HbA1c and cholesterol.
	Duration: 6 months. Intensity: 5 minutes. Frequency: baseline and 3 months.	*Duration: 12 months. Intensity: 30 minutes. Frequency: baseline, 3 and 12 months.*
Glasgow 2003	Only Peer Support intervention included in this review. Individuals in the Peer Support conditions participated in several activities that provided them with opportunities to exchange diabetes-related information, coping strategies, and emotional support. The main activity area, the Diabetes Support Conference, was a peer-directed (but professionally monitored) forum for participants to interact with one another in a safe, supportive setting where participants were encouraged to express their concerns, successes, and frustrations with their day-to-day coping with diabetes. Group members posted messages that other members could read and answer. A structured support conference area called Focus Forums was more topic-oriented than the Diabetes Support Conference. Periodically, the research staff introduced specific diabetes-related topics to stimulate peer group discussion. For example, topics included “Denial? Not Me!,” “Getting the Best of Stress,” and the “Ebb and Flow of Living with Diabetes.” In addition to these support activities, participants could also engage in real-time live chat discussions. Those in the PS conditions also received electronic newsletters focused on community resources and support five times throughout the study.	Participants in the Information Only condition had computer access to an extensive number of articles on topics of medical, nutritional, and lifestyle aspects of diabetes. All these articles gave information only and did not systematically instruct participants or provide individually tailored recommendations for changing dietary practices or other behaviours. They also completed assessments on-line and received automated dietary change goals based upon their current dietary levels. Each participant received in-home training in use of the computer of approximately two to three visits of 1–2 h each.
	Duration:10 months. Intensity: not stated (participant driven). Frequency: not stated (participant driven).	*Duration: 10 months. Intensity: not stated. Frequency: not stated.*

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Glasgow 2005	Touch screen computer: Participants were asked to recall when they last received the 11 diabetes care items contained in the American Diabetes Association/ National Committee for Quality Assurance Provider Recognition Program measures as in the control group; Part 2 involved a self-management action plan for diet, activity and smoking, summary of goals and assays due, 1-page printout, care-manager review and brief follow-up.	Touch screen computer: Participants were asked to recall when they last received the 11 diabetes care items contained in the American Diabetes Association/ National Committee for Quality Assurance Provider Provider Recognition Program measures and general; health risk issues (e.g., use of seatbelts, cancer screening) and given printout of general risks.
	Duration:12 months. Intensity: 30 minutes. Frequency: 6 monthly.	*Duration: 12 months. Intensity: 30 mins. Frequency: 6 monthly.*
Glasgow 2006	1) The computer presented a comprehensive list of benefits of and barriers to healthy eating and being;physically active, and patients were allowed to write in their own benefits and barriers if they did not find one that suited them. The program next produced lists of suggested strategies tailored to the individual's identified barriers. Then participants were asked to rate their self-efficacy or confidence in;achieving the goals and carrying out the;strategies delineated in their action plans. If a participant rated self-efficacy at less than 7 on the ten-point scale, the computer program encouraged revision of the plan, 2) The plan was then translated by the computer;program into a printout that was used as a tool for dialogue between the patient and their health coach., 3) At approximately 1 week and 1 month after the first visit, participants received a follow-up call, averaging 10-15 min, from their health coach to review their goals, barriers, and strategies, and reinforce or revise their plan as appropriate , 4) A tailored health newsletter was also mailed approximately 6 weeks after the first visit.	Enhanced Usual Care: The usual care comparison group received computer-assisted generic health risk appraisal and feedback.
	Duration: 2 months. Intensity: not stated, 10-15 mins for phone call. Frequency: once for computer, twice for phone calls, also letter (once) first visit (once).	*Duration: 2 months. Intensity: not stated. Frequency: not stated.*
Glasgow 2010	CASM participants were given access to the "My Path to Healthy Life"/"Mi Camino A La Vida Sana" website and instructed in website log-in, navigation, and usage by a research staff member. Participants were asked to select initial, easily achievable goals in each of three areas: medication adherence, exercise, and food choices. They recorded their progress on these three daily goals using the tracking section of the website and received immediate feedback on success meeting their goals over the past 7 days. The website included a graphical display of the patient's haemoglobin A1c, blood pressure, and cholesterol results; moderated forum; and community resources (e.g., healthful recipes, printable handouts) for DSM and healthy lifestyles, as well as features to enhance user engagement, such as rotating quiz questions and motivational tips.; after 6 weeks, participants created new personalized goals and "action plans" for medication taking, healthy eating, and PA. For each of the three areas, users identified barriers to achieving the (revised) goal(s) they had selected, and then chose from a list of problem-solving strategies to overcome those barriers. Each user's action plan summary was available for easy reference and/or revision. In addition to the website, CASM participants received periodic prompting using a computer-based telephone system that initiated outbound calls, received inbound calls, provided motivational information, and collected data.	Enhanced Usual Care (EUC) provided computer-based health risk appraisal feedback and recommended preventive care behaviours using the same contact schedule as CASM, but did not include the key intervention procedures. EUC participants, as well as CASM and CASM+SS participants, were eligible to participate in other traditional DSM education, such as education classes, weight loss groups, or case management available to Kaiser Permanente Colorado (KPCO) members, but very few did so during the study.

Leu 2005	Patients in the pager group received instructions on pager use. They were asked to demonstrate how to use the pager, and then were asked about the messages that they desired (text, frequency, and time at which the message should be sent). As determined by a previous study,9 appointment reminders, medication reminders, blood glucose testing reminders, exercise reinforcement, dietary reinforcement, meal time reinforcement, and laboratory result reporting were offered. Custom reminders were supported, including reminders for the time of day ("It's 3:00-ish!") and reinforcement for other health-related tasks ("Time for water."). Birthdays were noted. The patients received contact information, including the number of the investigator, the pager number, the number of the University of Washington Physician's Network clinic, and instructions to dial 911 for emergencies. The patients were taken to the laboratory, and the messaging system was configured.	Presumed usual care.
	Frequency: daily.	
Lim 2011	Diabetes education provided at baseline. The u-healthcare group was educated to use public switched telephone network-connected glucometer to measure their blood glucose level at least 8 times a week (≥3 at fasting, ≥3 postprandial, and ≥2 bedtimes) and to start short message service (SMS) on their mobile phone to receive messages from the CDSS rule engine server. Additional education was provided to help patients with its usage and message interpretation. All patients visited the outpatient clinic every 3 months for an interview conducted by their physician and provided a blood sample. After glucose levels were measured, the GlucoDr Supersensor glucometer was placed onto its own cradle, after which all of the tested data were automatically transferred and stored in the database of the remote data collection server. These data were evaluated by the CDSS to generate patient-specific messages. CDSS-generated messages were sent to the patient's mobile phone within 2 minutes of data transfer. The patient's anthropometry, blood pressure, current blood glucose and A1C levels, and current medication were simultaneously uploaded from the hospital's electronic medical record (EMR) server to the u-healthcare server. Personal information, including diet and exercise, was also collected and stored on the server to provide appropriate individualized service. Information from the patient's glucometer was automatically sent to the server, after which instructions that were appropriate and specific for each patient were generated by the CDSS rule engine. The CDSS rule engine is based on the clinical practice recommendations of the American Diabetes Association and the Korean Diabetes Association. In addition to providing messages as a response to the patient's glucose testing, the CDSS rule engine also generated evaluation messages on each patient's the weekly and monthly average glucose levels. These messages were sent on Mondays and Tuesdays, respectively. To ensure compliance with frequent glucose testing (at least 8 times/week), evaluation messages on the total number of weekly glucose measurements were also sent on Wednesdays as a reminder.	Provided pertinent diabetes education, including a therapeutic lifestyle change program, to standardize every patient's education level and practice of diabetes management. After the education, individuals in the control group did not receive an intervention and were advised to follow-up according to their current medical care. All patients visited the outpatient clinic every 3 months for an interview conducted by their physician and provided a blood sample.
	Duration: 6 months. Intensity: Received messages within 2 minutes of uploading blood glucose data. Frequency: Recommended frequency at least 11 times a week.	
Lo 1996	Sixteen computerised lessons each dealing with 1/2 aspects of management. Lessons	Conventional diabetes education sessions as one group , four sessions

	included: introduction to diabetes, treatment of diabetes part 1 - carbohydrates in the diet, treatment of diabetes part 2 - complications of diabetes, complications of diabetes part 1 - exchanging diet portions, complications of diabetes part 2 - preventing complications, protein and understanding food labels, exercise and diabetes, sexuality pregnancy and diabetes, eating out, blood and urine testing, insulin injections, alcohol and diabetes, travelling and diabetes. Each learning objective is displayed, then explained in more detail, then followed by a test, patients cannot progress through the lesson until they have passed the test. At the end of each lesson there is a multiple choice revision test, and the patient can only exit the lesson once they have passed the test.	of between 2 and a half to 3 hours conducted weekly by diabetes educators and dieticians who used audio-visual aids and printed materials to reinforce learning.
	Duration: Not stated. Intensity: 1 hour. Frequency: 3-6 sessions, on average 4.	*Duration: 1 month. Intensity: 2.5-3 hours. Frequency: once weekly for 4 sessions.*
Lorig 2010	1)The Learning Center, where the program content is offered in 20–30 new Web pages weekly. Each week, participants are asked to reply to a question such as "What problems do you have because of your diabetes?" and to make a specific action plan. The questions and action plans are posted on bulletin boards in the 2) Discussion Center, where they can be seen by all participants. The Discussion Center is made up of four interactive threaded bulletin boards (Action Planning, Problem Solving, Difficult Emotions, and Celebrations) populated by responses made in the Learning Center, as well as new threads started by participants whenever they wish. A typical program of 20–25 participants results in 500 or more posts.3) My Tools consists of exercise and medication logs, audio relaxation exercises, meal planning, and glucose- monitoring tools and links to other diabetes-related Web sites.4) Post Office is a section where participants and facilitators can write private, individual messages to each other.5) Help is a section where participants can e-mail the moderators or program administrators. The latter is also available via a toll-free telephone line. In addition to the Web program, each participant received a copy of the book.6) Living a Healthy Life with Chronic Conditions. Specific sections of this book are referenced in the Learning Cente. 7) Reinforcement - a list serve peer support discussion group.	Usual-care participants were not restricted from seeking additional care or programs.
	Duration: 6 weeks. Intensity: not stated. Frequency: not stated.	*Duration: 6 weeks. Intensity: not stated. Frequency: not stated.*
Quinn 2008	The WDS is designed to serve as a virtual coach for patients and a virtual endocrinologist for HCPs, facilitating the coordination of diabetes care among existing resources. The primary areas of focus during this 3-month trial were to test the WDS's ability (1) to teach patients about dietary impacts on BG levels, (2) to direct patients to generate higher-quality BG data, and (3) to determine the effect of provided patient BG data, data analysis, and suggested therapy recommendations on HCP prescribing behavior. The patient communication system used a One Touch Ultra BG meter, Bluetooth-adapted such that when the patient removed the test strip out of the BG meter, the patient's BG value would be wirelessly, securely, and automatically sent to the patient's cell phone. Cell phones used for the trial were either Nokia 6682 or Nokia 6680. Patient data were uploaded from the web server into the cell phone and integrated into the cell phone based software, DiabetesManager, for personalized feedback.	At baseline, all patients completed the Summary of Diabetes Self-Care Activities (SDSCA) questionnaire and had an A1c and complete medical and demographic history obtained by the research team. Patients randomised to the control group received One Touch Ultra™ BG meters (LifeScan, Milpitas, CA) and adequate BG testing strips and lancets for the duration of the trial. They were asked to fax or call in their BG logbooks every 2 weeks to their HCPs until their BG levels were stabilized in the target ranges or until their HCPs changed testing frequency. Investigators asked treating HCPs to follow their usual standards of care for the patients' diabetes management.
	Duration: 12 months. Intensity: not stated. Frequency: not stated.	*Duration: 3 months. Intensity: not stated. Frequency: up to*

		fortnightly calls/faxes to research team.
Quinn 2011	Patients selected one of two mobile phone models, received a one-year unlimited mobile phone data and phone service plan, receive the study treatment phone software, and had access to the web-based individual patient portal. All patients in the intervention group were given system-driven guidance on when to test their BG based on their disease status, medication regimen, and time of poorest control (for example, pre prandial versus postprandial) so that the most useful, patient-specific multi-point BG profile was created and used for data analysis and self-management coaching for the patient. For quality assurance, diabetes educators and endocrinologists periodically reviewed patients' electronic logbook data and the summary analysis reports, generated for patients and physicians. After random treatment assignment, patients in the;intervention groups were risk stratified by the coaching system based on co morbidities, complexity of medication regimen and diabetes status. This risk-stratification was used to direct the level of diabetes educator interaction with patients.;;Those patients who were determined highest risk level were contacted by a diabetes educator via the web-based messaging centre, at most, four times a month. Other patients received communication updates every 2–3 months. These communications were directed by patterns in patient data and focus on such topics as self-management skills, blood glucose control, and medication adherence. The majority of the patient communication was delivered by automated feedback on the mobile phone and messaging through the message centre in the patient web portal. If the content material had not been created at the time a particular patient problem had been identified that needed to be addressed, a diabetes educator wrote a message to the patient. This material was then catalogued by the coaching system and added for future automation. Outbound patient phone calls by the educators were discouraged and limited to those patients who displayed high-risk glycaemic patterns (i.e., repeat severe hypoglycaemia) or who requested to be contacted by phone for self-management issues. Patients received the coaching software system on the mobile phone. Patients entered BG data, carbohydrates consumed, diabetes medications taken, and miscellaneous comments regarding diabetes self-care. “Just-in-time” (real-time) messaging was sent to the patient's mobile phone providing feedback on the entered data. The feedback was driven by the values of the patient's data, the trend of any recently entered data and the;physician's medication instructions for each patient. Entered data were captured in real-time in the web-based logbook. Patients could provide their PCPs with printed copies of their electronic logbooks and other information. Patient action plans summarizing the patient entered data and identifying possible self-management actions for improving their diabetes control were electronically sent to the patients every 2.5 months. Each patient was instructed that action plans also serve as a pre-visit summary for the patient's next office visit to their PCP.	Patients receive a One Touch Ultra 2™ (LifeScan, Milpitas, CA) glucose meter and supplies for a year. Patients were told to use the glucose meter as recommended by their physicians. Patients provided SMBG information based on their individual physicians' instructions, including the physician practice option to download SMBG from the study;patient glucose meter. Primary Care Providers provided care as usual. Provider-driven care, based in office, no special diabetes management.
	Duration: 12 months. Intensity: Real-time (instant response) to patient entered data. Frequency: variable - determined by needs of patient. Diabetes educators contacted patients a maximum of 4 times a month, but usually every 2-3 months. Patient action plans sent out every 10 weeks.	*Duration: 12 months. Intensity: not stated. Frequency: not stated.*

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Smith 2000	Everyone in the computer group was trained how to use the software and those who didn't have computers were loaned laptop computers. The software consisted of 4 components: 1)"Conversation" - the women were encouraged to converse with each other about anything, this area functioned much like a support group, exchanges were monitored daily by the Community Diabetes educator nurse monitor, but she did not actively participate unless directly invited. 2) "Mailbox" - women could email each other or the nurse monitor privately. 3) "Health chat" - was en education platform, like an "electronic classroom", questions specific to diabetes and articles from the Health Information notebook were discussed, the nurse monitor took an active role in this. 4) "Resource rack" - functioned as a "bulletin board" where project team posted items of interest to people with diabetes, it was a read-only feature.	Hard copies of all the materials given to intervention group including a notebook of health information regarding women's health in general and specific diabetes information (with special attention to its effects on women).
	Duration: 5 months. Intensity: variable. Frequency: variable.	*Duration: 5 months. Intensity: variable. Frequency: variable.*
Wise 1986	Only subgroup IV included in this review: ICT+KAP. ICT: interactive computer teaching program consists of sequences of text and animated graphics dealing with general diabetes concepts, hypoglycaemic drug action, glucose control, blood and urine monitoring, complications, diet and foot care. Each teaching program used the principle of questioning after each provision of fact, followed either by optional or compulsory rerun of the fact sequence if inadequate performance was recorded for any subject. 45-60 mins to complete.The KAP was used in arms II, III, IV of the trial (at baseline and 4-6 months) and consists of multiple-choice questions dealing with all major topics covered by the ICT programme - general diabetes concepts, hypoglycaemic drug action, glucose control, blood and urine monitoring, complications, diet and foot care. Responses are automatically scored and filed on disk for later analysis; a printout can be automatically generated on conclusion, giving the score and corrective feedback on options omitted or incorrectly answered in the form of a personalised listing. NB/ in arm II of the trial participants weren't given the feedback printout, in arm III of the trial participants were given the printout, and in arm IV they weren't given the printout but did the ICT (see below) 1 week after the first KAP.	"Unaware of the study" and evaluation of only HbA1c.
	Duration: 6 months. Intensity: ICT 45-60 mins, KAP 20-40 mins. Frequency: ICT once, KAP twice.	*Duration: 4-6 months.*
Yoo 2009	1. Alarm on cell phone for twice daily blood pressure and glucose measurement, once daily weight and exercise: automated replies with advice. 2. Text messages to phone about exercise. 3. Three text messages a day about lifestyle advice. 4. Physician tailored advice.	Patients in the control group visited their clinic according to their routine schedule and received the usual out-patient treatment from their physicians during the study period. During the trial, drug dosage was not changed in either the UCDC or the control groups at either location.
	Duration: 12 weeks. Intensity: variable. Frequency: > 3 times a day.	*Duration: 12 weeks.*
Zhou 2003	Computer assisted nutrition therapy group (test group) 88 samples, using the dietary therapy from ‘Diabetes diet advisor V1.0’, three plans every time, patients consume food according to the plans. Operation of ‘Diabetes diet advisor V1.0’ : patients input their personal details (name, sex, age, height, weight, fitness and other complications), select the food types of breakfast, lunch and dinner (there are 26 types of food in total), put them into each meal respectively, then click ‘select menu’. The computer processes according	Fixed carbohydrate content group - the daily caloric intake, the ratio of carbohydrate, protein and fat and the amount of principle food are decided by the doctor.

	to the basic information of the patients. The screen displays the dietary plan after the process. If the patients do not accept the dietary plan, they can click ‘manual adjustment’. Interaction takes place between the patient and the computer, selecting suitable dietary plan directly. For this software, the patients select the food types according to their individual choice, the quantity of food is determined from the interaction between the computer and the patient. Therefore, most type 2 diabetic patients accept the dietary plan from the computer. They do not just follow the dietary plan continuously, but also feel the software increased the controllability of nutrition therapy.	
	Duration: 8 weeks. Intensity: not stated, 2 weekly follow up. Frequency: not stated.	*Duration: 8 weeks. Intensity: not stated, 2 weekly follow up. Frequency: not stated.*

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Supplementary Table 4. Behavior change techniques used by intervention and control groups in included studies.

Study ID	Intervention	Control
Christian 2008	1 Provide information on consequences of behaviour in general	1 Provide information on consequences of behaviour in general
	5 Goal setting (behaviour)	
	6 Goal setting (outcome)	
	8 Barrier identification/Problem solving	
	10 Prompt review of behavioural goals	
	38 Motivational interviewing	
Glasgow 1997	5 Goal setting (behaviour)	Not stated
	6 Goal setting (outcome)	
	8 Barrier identification/Problem solving	
	10 Prompt review of behavioural goals	
	27 Use of follow up prompts	
Glasgow 2003	*Peer support intervention:*	1 Provide information on consequences of behaviour in general
	1 Provide information on consequences of behaviour in general	5 Goal setting (behaviour)
	28 Facilitate social comparison	
Glasgow 2005	5 Goal setting (behaviour)	1 Provide information on consequences of behaviour in general
	8 Barrier identification/ Problem solving	
	27 Use follow-up prompts	
Glasgow 2006	5 Goal setting (behaviour)	1 Provide information on consequences of behaviour in general
	8 Barrier identification/Problem solving	
	10 Prompt review of behavioural goals	
	27 Use follow-up prompts	
	38 Motivational interviewing	
Glasgow 2010	1 Provide information on consequences of behaviour in general	1 Provide information on consequences of behaviour in general
	5 Goal setting (behaviour)	
	8 Barrier identification/Problem solving	
	19 Provide feedback on performance	
Leu 2005	23 Teach to use prompts/cues	Not stated
Lim 2011	16 Prompt self-monitoring of behavior	Not stated
	19 Provide feedback on performance	
	23 Teach to use prompts or cues	
Lo 1996	1 Provide information on consequences of behaviour in general	1 Provide information on consequences of behaviour in general
Lorig 2010	1 Provide information on consequences of behaviour in general	Not stated
	3 Provide information about others' approval	
	4 Provide normative information about others' behaviour	
	8 Barrier identification/Problem solving	
	17 Prompt self-monitoring of behavioral outcome	
	37 Emotional control training	
Quinn 2008	17 Prompt self-monitoring of behavioral outcome	17 Prompt self-monitoring of behavioral outcome
	19 Provide feedback on performance	
	20 Provide information on where and when to perform the behaviour	
Quinn 2011	17 Prompt self-monitoring of behavioral outcome	Not stated
	19 Provide feedback on performance	

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Smith 2000	1 Provide information on consequences of behaviour in general	1 Provide information on consequences of behaviour in general
	29 Plan social support/social change	
Wise 1986	1 Provide information on consequences of behaviour in general	Not stated
Yoo 2009	1 Provide information on consequences of behaviour in general	Not stated
	2 Provide information on consequences of behaviour to the individual	
	16 Prompt self-monitoring of behavior	
	17 Prompt self-monitoring of behavioral outcome	
	19 Provide feedback on performance	
	20 Provide information on where and when to perform the behaviour	
	23 Teach to use prompts or cues	
	32 Fear arousal	
Zhou 2003	7 Action planning	5 goal setting (behaviour)

Numbers correspond to additional table e1 ('taxonomy of behaviour change techniques')

Supplementary Table 5. Study data.

Study ID	Primary[a] endpoint(s)	Secondary[b] endpoints	Other[c] endpoints
Christian 2008	*Intervention:*	*Intervention:*	*Intervention:*
	Change: -0.08 kg (4.95)	Physical activity: baseline physical activity in MET-min 478.2 [1098.1], change MET-min/wk 354 [574] 95 CI 257.5 to 451.4	BP: base systolic 131.80 [17.02], diastolic 76.56 [10.53], change -2.55 [20.37] 95CI -5.942 to 0.841,
	Lost 5% body weight or more in 12-month period: 30 (21%)	Energy intake: baseline Caloric intake per week 12787.3 [3187.2], change kcal/wk -947 [1936] 95CI -1271.0 to -623.4	change -2.60 [13.79] 95CI -4.896 to 0.304
		Lipids: TC: baseline: 4.94 (1.20), change: -0.41 (1.16) (95% CI: -0.60 to-0.22)	Waist circumference: base WC 118.1 [14.95], change -1.764 [7.045] 95CI -2.941 to 0.586
		HDL: baseline: 1.09 (0.33), change: 0.01 (0.44) (95% CI: -0.08 to 0.06)	
		LDL: baseline: 2.59 (0.83), change: -0.38 (1.00) (95% CI: -0.54 to - 0.21)	
		Trigs: baseline: 2.01 (1.17), change: -0.15 (1.09) (95% CI: -0.33 to 0.03)	
		HbA1c: change: -0.141 (1.76)	
	Control:	*Control:*	*Control:*
	Change: 0.63 kg (4.81)	Physical activity: baseline physical activity in MET-min 442.0 [709.9], change in physical activity MET-min/week 51[443]	BP: base systolic 132.26 [17.43], diastolic 77.83 [9.58], change in systolic: -4.66 [20.81] 95CI -8.243 to -1.077,
	Lost 5% body weight or more in 12-month period: 14 (11%)	95CI -25.72 to 127.72	change in diastolic -2.54[11.63] 95CI -4.640 to -0.637
		Energy intake: baseline Caloric intake	Waist circumference: base WC

		per week 12211.5 [3495.1], change in caloric intake -507 [1963] 95CI -847.7 to -166.3	116.6 [15.23], change -0.543 [6.498] 95CI -1.670 to 0.589
		Lipids: TC: baseline: 4.90 (1.42), change: -0.10 (1.17) (95% CI: -0.30 to 0.10)	
		HDL: baseline: 1.15 (0.48), change: 0.04 (0.30) (95% CI: -0.01 to 0.09)	
		LDL: baseline: 2.74 (1.00), change: -0.10 (1.00) (95% CI: -0.27 to 0.07)	
		Trigs: baseline: 2.09 (2.90), change: -0.11 (1.07) (95% CI: -0.29 to 0.08)	
		HbA1c: change -0.46 (1.63)	
Glasgow 1997		*Intervention:*	Overall MANCOVA for dietary behaviour: F statistic (3,140) = 3.16, P value = 0.008
		HbA1c: Baseline 7.9, 3-month data 7.6 P = 0.2, n = 174; 12 months 7.8, P = 0.42, n = 161	Economic data: cost totaled $14755 or $137 per participant. $7478 for labour,
		BMI: n = 164, baseline 30.4, 12 months 30.5, P = 0.33	
		Lipids: n = 167, baseline = 217, 3-month data 207, P < 0.001; n = 173,12 months, 208, P = 0.002	$4627 for materials, postage and phone $2650 for computer hardware and software.
		Food habit questionnaire: baseline 2.26, 3-month data 2.06, P < 0.001, n = 177; 12 months 2.06, P = 0.007	
		4-day food record Kcal/day (n = 142): baseline 1740, 3-month data 1590, P < 0.01, n = 154; 12 months 1547, P = 0.05	Overall $62 per reduction of each %age of in diet fat
		% Cal from fat: baseline 33.8, 3-month data 29.4, P = 0.008, n = 154; 12 months 30.5 P = 0.023	$105 per percent reduction in sat fat and $8 per mg/dl reduction in serum cholesterol
		% Cal from sat fat: baseline 11.2, 3-month data 9.8, P = 0.007, n = 152; 12 months 9.7, P = 0.003	
		Control:	Total cost per patient:
		HbA1c: Baseline 7.9, 3-month data: 7.7, P = 0.20, n = 174; 12-month data: 7.8, P = 0.42,n = 161	if 100 patients seen per year: $139
		BMI: n = 164, baseline 30.2,12 months 30.4, P = 0.33	if 500 patients seen per year: $117
		Lipids: baseline = 223, 3-month data 231, P < 0.001, n = 173; 12-month data 226 P = 0.002, n = 167	if 1000 patients seen per year: $115
		Food habit questionnaire: baseline 2.20, 3-month data 2.15, P < 0.001, n = 177; 12 months 2.17, P = 0.007	Cost per 1% recent reduction in fat intake:
		4-day food record Kcal/day (n = 142): baseline 1761, 3-month data 1767, P < 0.01, n = 154; 12 months 1659. P = 0.05	if 100 patients seen per year: $63
		% Cal from fat: baseline 32.9; 12 months 32.0 P = 0.023, 3-month data 31.9, P = 0.008, n = 154	if 500 patients seen per year: $53

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		% Cal from sat fat: baseline 10.8, 3-month data 10.7, P = 0.007, n = 152, 12 months 10.7 P = 0.003	if 1000 patients seen per year: $52
			Cost per unit reduction in cholesterol:
			if 100 patients seen per year: $8.40
			if 500 patients seen per year: $7.11
			if 1000 patients seen per year: $6.95
Glasgow 2003	Changes in dietary behaviours (fat and fruit/vegetable intake)	*Intervention:*	100% participation in on-line dietary assessment.
	Intervention:	HbA1c: baseline: 7.54 (1.68), 10 months 7.42 (1.10), group differences (no intervention- intervention) 0.28	
	Kristal Fat and Fiber behaviour scale (low is good): baseline: 2.19 (0.5), 10 months 1.96 (0.38), group differences (no intervention-intervention) 0.04	Total cholesterol: HDL cholesterol ratio: baseline: 5.43 (1.59), 10 months 5.02 (1.16), group differences	
	Estimated grams of daily fat: baseline: 44.0 (31.9), 10 months 27.9 (14.3), group differences (no intervention-intervention) 1.85	(no intervention- intervention) 0.11	
		Average minutes of physical activity per day: Peer support: baseline: 29.4 (22.3), 10 months 30.5 (22.8),	
		group differences (no intervention-intervention) 1.96, MANCOVA univariate P level 0.512.	
		Guidelines met (%): Peer support: baseline: 64.82 (20.96), 10 months 79.43 (14.71),	
		group differences (no intervention-intervention) -0.49, MANCOVA univariate P level 0.798.	
		Diabetes support scale: Peer support: baseline: 4.05 (1.28), 10 months 5.22 (1.11),	
		group differences (no intervention-intervention) -0.51, MANCOVA univariate P level 0.001 - i.e. significant at the 0.05 level.	
		Centre for Epidemiologic Depression Scale: Peer support: baseline: 18.1 (10.51), 10 months 12.59 (9.13),	
		group differences (no intervention-intervention) 1.47, MANCOVA univariate P level 0.219	
		No cases of incorrect medical information being posted	

		Logons per participant per month: months 1-3: 18.7, months 7-10: 6.7	
	Control:	*Control:*	
	Kristal Fat and Fiber behaviour scale (low is good): baseline: 2.22 (0.41),10 months 2.00 (0.38),	HbA1c: baseline: 7.35 (1.56), 10 months 7.68 (1.10),	
	group differences (no intervention-intervention) 0.04, MANCOVA univariate P level 0.399.	group differences (no intervention-intervention) 0.28, MANCOVA univariate P level 0.051 - i.e. significant at 0.05 level	
	Estimated grams of daily fat: baseline: 41.3 (26.4), 10 months 29.8 (14.3)	TC: HDL ratio: baseline 5.44 (1.79), 10-month adjusted mean 5.13 (1.16)	
		Average minutes of physical activity per day: baseline: 30.7 +/- (24.1), 10 months 32.5 +/- (22.8)	
		group differences (no intervention-intervention) 1.96, MANCOVA univariate P level 0.512.	
		Guidelines met (%): baseline: 65.19 (19.51), 10 months 78.94 (14.71).	
		group differences (no intervention-intervention) -0.49, MANCOVA/ univariate P level 0.798.	
		Diabetes support scale: baseline: 4.23 (1.23), 10 months 4.71 (1.12),	
		group differences (no intervention-intervention) -0.51, MANCOVA univariate P level 0.001 - i.e. significant at the 0.05 level.	
		Centre for Epidemiologic Depression Scale: baseline: 17.8 (10.08), 10 months 14.06 (9.12),	
		group differences (no intervention-intervention) 1.47, MANCOVA/ univariate P level 0.219 .	
		Logons per participant per month: months 1-3: 9.4, months 7-10: 3.6	
Glasgow 2005	Number of recommended laboratory screenings and recommended patient-centred care activities completed from the National Committee on Quality Assurance/ American Diabetes Association Provider Recognition Program (PRP)		

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	Intervention:	*Intervention:*	
	Lab procedures completed:	HRQOL: PAID-2 base: 30.28 +/- 4.22, 6 months 29.72 +/-4.90, 12 months 29.7 +/- 4.9	
	I: baseline 3.92(0.99) 12 months 4.29 (0.86)	HbA1c: base: 7.33 +/- 1.34 MEAN+/- SE, 12 months 7.14 +/- 1.38,	
	Patient centred activities:	TC: HDL ratio base: 4.32 +/- 1.19, 12 months: 4.17 +/- 1.18, MEAN +/- SE	
	I: baseline 3.04 (0.99) 12 months 3.74 (0.57)	PHQ-9 score of 10 or higher: Baseline: 19.2%, 6 months: (from 2053) 17.4% = unadjusted percentage, 15.0% = adjusted percentage,	
		P = 0.747 from ANCOVA with control,12 months: unadjusted 12.2%, 12-month adjusted12.3%	
		Baseline to 12-month change in provider autonomy support : 6.05 +/- 0.05 = mean +/- SE	
		Baseline to 12-month change in perceived competence: 5.90 +/- 0.06 = mean +/- SE	
	Control:	*Control:*	
	Lab procedures completed:	HRQOL: PAID-2 baseline: 28.54 +/- 5.02 (SD), 6 months: 26.78 +/- 4.35, 12 months 26.8 +/- 4.4	
	C: baseline 2.93 (1.03) 12 months 3.31 (0.86)	HbA1c: baseline: 7.30 +/- 1.22 ?Mean +/- SE, 12 months 7.13 +/- 1.06	
	Patient centred activities:	TC: HDL ratio base: 4.38 +/- 1.16, 4.14 +/- 1.16 MEAN +/- SE	
	C: baseline 3.88(1.06) 12 months 4.01 (1.06)	PHQ-9 score of 10 or higher: Baseline 16.1%, 6 months: (from 2053) 11.4% = unadjusted percentage, 13.4% = adjusted percentage,	
		12 months: 13.6% = unadjusted percentage, 13.9% = adjusted percentage (from 1683)	
		Baseline to 12-month change in provider autonomy support: 5.89 +/- 0.05 ?mean +/- SE	
		Baseline to 12-month change in perceived competence: 5.75 +/- 0.07 ?mean +/- SE	
Glasgow 2006		*Intervention:*	
		Diabetes distress scale: baseline 40.1 (17.5), visit 2 33.6 (14.2)	
		HbA1c: Baseline 7.4 (1.6), final 7.3(1.5)	
		TC/HDL ratio: baseline 3.9 (1.2), 2 months 3.8 (1.0)	
		Total cholesterol mmol/L: baseline 4.79 (1.17), 2 months 4.74 (1.00)	
		HDL cholesterol mmol/L: baseline 1.27 (0.42), 2 months 1.30 (0.39)	
		Fruit and Vegetable screener score: Baseline 5.5(3.8), final 5.7 (4.8)	

		Estimated daily fat intake: baseline 27.6 (17.9), final 22.4 (15.2)	
		PHQ-9 baseline 5.7 (4.9): final 5.5 (5.0)	
		Weight: baseline 94.3 (24.6), final 93.6 (23.6)	
		Control:	
		Diabetes distress scale: baseline 41.5 (18.9), visit 2 36.2 (17.0)	
		HbA1c: Baseline 7.5(1.6), final 7.5(1.8)	
		TC/HDL ratio: baseline 3.9 (1.0), 2 months 3.8 (1.1)	
		Total cholesterol mmol/L: baseline 4.79 (1.09), 2 months 4.76 (0.93)	
		HDL cholesterol mmol/L: baseline 1.29 (0.36), 2 months 1.32 (0.38)	
		Fruit and Vegetable screener score: Baseline 5.1 (3.0), final 5.0 (3.4)	
		Estimated daily fat intake: baseline 32.4 (20.9), final 28.5 (17.8),	
		PHQ-9: baseline 5.4 (5.1), final 5.5 (5.3)	
		Weight: baseline 94.0 (24.5), final 94.0 (24.5)	
Glasgow 2010	Behaviour changes in healthy eating, physical activity and mediation changes	*Intervention:*	
		HbA1c: ITTA (Intention to treat analysis - used in meta-analysis), Baseline: 8.01 (1.85), 4 months: 7.84 (1.67)	
		Complete cases (used in meta-analysis), Baseline: 7.86 (1.59), 4 months: 7.76 (1.50)	
		BMI: ITTA (used in meta-analysis), Baseline: 34.47 (6.28), 4 months: 34.39 (6.27), Complete cases, Baseline: 34.58 (6.46),	
		4 months: 34.54 (6.41)	
		BP: Mean arterial pressure (mm Hg), ITTA (used in meta-analysis), Baseline: 95.42 (10.40), 4 months: 94.27 (10.20)	
		Complete cases, Baseline: 94.48 (9.69), 4 months: 93.83 (10.27)	
		Lipids:	
		Total cholesterol: HDL ratio: ITTA (used in analysis), Baseline: 4.00 (1.25), 4 months: 3.84 (1.16), Complete cases	
		Baseline: 3.87 (1.04), 4 months: 3.74 (0.98)	
		Diet: Eating habits - "Starting the conversation" scale -: ITTA (used in analysis), Baseline: 2.19 (0.33), 4 months: 2.34 (0.31),	
		Complete cases, Baseline: 2.17 (0.34), 4 months: 2.32 (0.3)	
		Fat intake - National Cancer Institute % energy from fat screen: ITTA (used in analysis), Baseline: 35.03 (5.71), 4 months: 33.48 (5.77),	
		Complete cases, Baseline: 35.23 (5.56), 4 months: 33.83 (5.54)	

		Physical Activity: Physical activity (cals per week) - CHAMPS questionnaire: ITTA (used in analysis),Baseline: 4294 (3054),	
		4 months: 4146 (3578), Complete cases, Baseline: 4483 (3035), 4 months: 4262 (3433)	
		Adherence: Medication adherence - Hill Bone Compliance scale: ITTA (used in analysis), Baseline: 3.77 (0.34), 4 months: 3.83 (0.33),	
		Complete cases, Baseline: 3.80 (0.26), 4 months: 3.83 (0.32)	
		Control:	
		HbA1c: ITTA (Intention to treat analysis - used in analysis), Baseline: 8.06 (1.76), 4 months: 8.00 (1.58), Complete cases	
		Baseline: 7.82 (1.54), 4 months: 7.78 (1.38)	
		BMI: ITTA (used in analysis), Baseline: 34.77 (6.55), 4 months: 34.83 (6.66), Complete cases, Baseline: 34.75 (6.73),4 months: 34.89 (6.84)	
		BP: Mean arterial pressure (mm Hg), ITTA (used in analysis), Baseline: 95.96 (11.48), 4 months: 96.64 (10.40), Complete cases,	
		Baseline: 95.41 (11.94), 4 months: 95.85 (10.34)	
		Lipids:	
		Total cholesterol: HDL ratio: ITTA (used in analysis, Baseline: 3.8 (0.98), 4 months: 3.69 (0.87), Complete cases, Baseline: 3.77 (1.01)	
		4 months: 3.66 +/-0.88	
		Diet: Eating habits - "Starting the conversation" scale: ITTA (used in analysis), Baseline: 2.13 (0.31), 4 months: 2.19 (0.28)	
		Complete cases, Baseline: 2.15 (0.3), 4 months: 2.18 (0.26)	
		Fat intake - National Cancer Institute % energy from fat screen: ITTA (used in analysis), Baseline: 35.21 (4.7), 4 months: 34.95 (4.93),	
		Complete cases, Baseline: 34.90 (4.73), 4 months: 34.81 (4.95)	
		Physical Activity: Physical activity (cals per week) - CHAMPS questionnaire, ITTA (used in analysis), Baseline: 3979 (3292)	
		4 months: 3241 (3221), Complete cases, Baseline: 3885 (3306), 4 months: 3098 (3107)	

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		Adherence: Medication adherence - Hill Bone Compliance scale: ITTA (used in analysis), Baseline: 3.78 (0.28), 4 months: 3.80 (0.37),	
		Complete cases, Baseline: 3885 (3306), 4 months: 3098 (3107)	
Leu 2005	*Intervention:*	*Intervention:*	
	HbA1c: Prior to enrolment 8.5%, Prelim interview 8.3%, Exit interview 8.2%. Difference -0.13 (0.93)	Blood pressure (% hypertensive): Preliminary interview 64% (16/25), Preliminary (stayed enrolled) 62% (13/21), Exit interview 38% (8/21)	
	Control:	*Control:*	
	HbA1c: Prior to enrolment 8.5%, Prelim interview 8.2%, Exit interview 7.9%. Difference -0.3 (1.12)	Blood pressure (% hypertensive), Preliminary interview 68% (17/25), Preliminary (stayed enrolled) 71% (15/21), Exit interview 76% (16/21)	
Lim 2011	*Intervention:*	*Intervention:*	
	I: The proportion of patients who achieved A1C < 7.0% without hypoglycaemia, the primary end point of this study, was 30.6% in the u-healthcare group.	HbA1c %: baseline 7.8 (1.3), 6 months 7.4 (1.0),	
		BMI: baseline 24.7 (2.4), 6 months 24.4 (2.5)	
		TC: mmol/L baseline 4.53 (0.93), 6 months 4.45 (0.88)	
		TG: mmol/L baseline 1.70 (0.66), 6 months 1.57 (0.64)	
		HDL: mmol/L 1.34 (0.31), 6 months 1.29 (0.21)	
		LDL: mmol/L 2.98 (0.72), 6 months 2.48 (0.68)	
		Weight: baseline: 64.3 (8.5), 6 months 63.5 (8.5)	
		Fasting glucose : baseline 137.3 (32.7), 6 months 124.3 (29.7)	
		Postprandial glucose: baseline 250.1 (68), 6 months 210.1 (49)	
		Frequency of SMBG: baseline 3.2 (3.5), 6 months 10.5 (5.1)	
	Control:	*Control:*	
	C: The proportion of patients that achieved A1C < 7.0% without hypoglycaemia, the primary end point of this study, was 14.0% in the control groups.	HbA1c %: baseline 7.9 (0.8), 6 months 7.8 (1.0)	
		BMI: baseline 25.5 (3.5), 6 months 25.8 (3.4)	
		TC: mmol/L baseline 4.38 (0.78), 6 months 4.51 (0.78)	
		TG: mmol/L baseline 1.53 (0.51), 6 months 1.47 (0.79)	
		HDL: mmol/L 1.13 (0.28), 6 months 1.17 (0.24)	
		LDL: mmol/L 2.84 (0.53), 6 months 2.41	

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		(0.39)	
		Weight: baseline: 63.6 (9.9), 6 months 64.2 (9.4)	
		Fasting glucose: baseline 146.8 (48.4), 6months 152.6 (58.0)	
		Postprandial glucose: baseline 259.1 (64.5), 6 months 291.1 (77.9)	
		Frequency of SMBG: baseline 2.7 (4.4), 6 months 2.4 (3.3)	
Lo 1996		*Intervention:*	
		HbA1c: Pre-education GHb 1280, post education 1137 df 11, t val -2.64 2 tailed prob 0.023	
		Knowledge: pre-education knowledge score: mean 10.92 post-education knowledge score: mean 14.33 df 11, t-value 9.03 2tailed prob 0.000	
		Control:	
		HbA1c: Pre-education GHb 1088, post education 1236 df 15, t val 2.70 2 tailed prob 0.016	
		Knowledge: pre-education knowledge score: mean 9.31 post-education knowledge score: mean 13.06 df 15, t-value 5.42 2tailed prob 0.000	
Lorig 2010	*Intervention:*	*Intervention:*	
	Intervention: Change in HbA1C: 0.009 (0.852)	Health distress scale change: Treatment combined: -0.203 (1.02)	
		Activity limitation scale change (0-4, lower is better): 0.006 (0.923)	
		Self efficacy scale change (0-10, higher better): 0.245 (1.87)	
		Change in aerobic exercise per week in min/wk: 7.04 (156)	
		PHQ9 score - 0.754 (4.26)	
		PAM patient activation (scale 0-100, higher is better): 5.70 (14.4)	
	Control:	*Control:*	
	Change in HbA1C: 0.126 (0.779)	Health distress scale change: -0.257 (0.844)	
		Activity limitation scale change (0-4, lower is better): 0.034 (0.848)	
		Self efficacy scale change (0-10, higher better): -0.203 (1.70)	
		Change in aerobic exercise per week in min/wk: -1.97 (130)	
		PHQ9 score −0.836 (3.82)	
		PAMpatient activation change (scale 0-100, higher better): 3.63 (14.4)	
Quinn 2008		*Intervention:*	
		HbA1c: Baseline 9.51, 3 months: 7.48 P value 0.04	
		Patient confident about DM control (self-reported): 100% at 3 months, no baseline	

		Knowledge: Improved knowledge of food choices (self-reported): 90.91% at 3 months, no baseline	
		Diet: Diabetes self-care: SDSCA scores - diet: baseline 3.15, 3 months 5.5	
		Exercise: Diabetes self-care: SDSCA scores - 3. Exercise baseline 2.08, 3 months 2.92	
		Adherence: Diabetes self-care: SDSCA scores - 2. Medications: baseline 5.92 3 months 6.64	
		Depression: New diagnosis of depression at 3 months: 9.09%	
		Medication intensified: 84.62%	
		Medication errors identified: 53.38%	
		Control:	
		HbA1c: Baseline(means) 9.05, 3 months: 8.37 P value 0.04	
		Patient confident about DM control (self-reported) : 75% at 3 months, no baseline	
		Knowledge: Improved knowledge of food choices (self-reported): 50% at3 months, no baseline	
		Diet: Diabetes self-care: SDSCA scores - diet: baseline 3.15, 3 months 3.86	
		Exercise: Diabetes self-care: SDSCA scores - 3. Exercise baseline 1.23, 3 months 1.57	
		Adherence: Diabetes self-care: SDSCA scores - 2. Medications: baseline 6.3, 3 months 6.75	
		Depression: New diagnosis of depression at 3 months: 20%	
		Medication intensified 23.08%	
		Medication errors identified 0%	
Quinn 2011	*Intervention:*	*Intervention:*	
	HbA1c: 12 months: n = 21 7.7 (1.0) change -1.6 (-2.3 to -1.0)	HbA1c: Baseline 9.3 (1.8) 3 months: n = 13, 7.6 (1.2) 6 months: n = 15 7.6 (1.1) 9 months: n = 16 7.6 (0.9)	
		HRQOL: Diabetes Distress scale baseline n = 23 2.7 (0.9), 12 months n = 20 2.6 (0.9). Change -0.1 (-0.4 to 0.3)	
		Blood Pressure: systolic: baseline n = 23 130 (18), 12 months n = 21 134(25), change +4 (-4 to 11), diastolic: baseline n = 23 79 (11),	
		12 months n = 21 82 (11), change +2 (-2 to 7)	
		Change in lipids: TC: baseline n = 23, 4.69 (0.91), 12 months n = 16, 3.91 (0.88) Change -0.62 (-1.11 to -0.13)	
		TG: baseline n = 23, 1.94 (1.13), 12 months n = 16, 1.28 (0.47) Change -0.60 (-1.24 to 0.05)	
		HDL: baseline n = 23, 1.14 (0.28), 12 months n = 16 1.09(0.23) Change +0 (-0.10 to 0.08)	

		LDL: baseline n = 23, 2.67 (0.75), 12 months n = 19 2.44(0.83) Change -0.21 (-0.54 to 0.13)	
		Depression: PHQ -9 score Baseline n = 23 5.2(4.8), 12 months: n = 21 4.6(5) change : -0.6 (-2.7 to 1.4)	
		Other - Diabetes symptom inventory: Diabetes symptom inventory baseline n = 22 16.4 (5.7), 12 months n = 21 15.5 (4.5) change: -2.8 (-7.7 to 2.0)	
	Control:	*Control:*	
	HbA1c: 12 months: n = 51 8.5 (1.8) change -0.7 (-1.1 to -0.3)	HbA1c: Baseline 9.2 (1.7), 3 months: n = 30, 8.2 (1.2) 6 months: n = 27 8.6 (2.0) 9 months: n = 43 8.5 (1.8)	
		HRQOL: Diabetes Distress scale baseline 2.4 (0.9), 12 months n = 46 2.3 (0.9). Change -0.1 (-0.4 to 0.1)	
		Blood Pressure: systolic: baseline n = 56 130 (22), 12 months n = 45 133 (20), change +2 (-3 to 7), diastolic baseline n = 56 78 (12)	
		12 months n = 45 79 (13), change +1 (-2 to 4)	
		Change in lipids: TC: baseline n = 56, 4.72 (1.32), 12 months n = 44, 4.35 (1.04) Change -0.28 (-0.57 to 0.03)	
		TG: baseline n = 56, 2.09 (1.89), 12 months n = 44, 1.91 (1.40) Change -0.26 (-0.66 to 0.14)	
		HDL: baseline n = 56, 1.14 (0.28), 12 months n = 44 1.17(0.31) Change +0.03 (-0.03 to 0.08)	
		LDL: baseline n = 51, 2.64 (0.93), 12 months n = 42 2.36(0.89) Change -0.16 (-0.39 to 0.08)	
		Depression: PHQ -9 score Baseline n = 56 4.7(5.6) 12 month: n = 44 3.6(4.1) change : -1.1 (-3.2 to 3.0),	
		Other - Diabetes symptom inventory baseline: Baseline 15.6 (5.6), 12 months n = 46 14.6 (4.8) change: -2.3 (-5.5 to 0.9)	
Smith 2000		*Intervention:*	
		Quality of life scale raw mean : 17.18 at 5 months, was adjusted for 7 covariates but no differences between control/ intervention groups after adjustment. Higher scores indicate better perceived QoL. NB/ no statistical measures of whether differences are significant are given in the text.	
		2/15 participants reported HbA1Cs before and after the intervention, there was an average decrease of 1.6% in the non-computer group, however nothing of significance can be said about these data. NB/ no statistical measures of whether differences are significant are given in the	

		text.	
		Personal resource questionnaire: raw mean score at 5 months = 121.76, was adjusted for 7 covariates but no differences between control/ intervention groups after adjustment. Higher PRQ scores indicate higher levels of social support. NB/ no statistical measures of whether differences are significant are given in the text.	
		Psychological adjustment to illness scale: raw mean score at 5 months = 77.79, was adjusted for 7 covariates but no differences between control/ intervention groups after adjustment. Lower PAIS scores show better adjustment to illness.	
		NB/ no statistical measures of whether differences are significant are given in the text.	
		Control:	
		Quality of life scale raw mean: 17.90 at 5 months, was adjusted for 7 covariates but no differences between control/ intervention groups after adjustment. Higher scores indicate better perceived QoL.	
		3/15 participants reported HbA1Cs before and after the intervention, there was an average increase of 1% in the non-computer group, however nothing of significance can be said about these data. NB/ no statistical measures of whether differences are significant are given in the text.	
		Personal resource questionnaire : raw mean score at 5 months = 128.53, was adjusted for 7 covariates but no differences between control/ intervention groups after adjustment. Higher PRQ scores indicate higher levels of social support. NB/ no statistical measures of whether differences are significant are given in the text.	
		Psychological adjustment to illness: scale raw mean score at 5 months = 80.24, was adjusted for 7 covariates but no differences between control/ intervention groups after adjustment. Lower PAIS scores show better adjustment to illness. NB/ no statistical measures of whether differences are significant are given in the text.	
Wise 1986	Knowledge Index:	*Intervention: Mean =/- SE*	Initial outlay $5000 transferred to system costing $800.
	Intervention: Mean +/- SE, baseline 60 +/- 3, final 73 +/- 2	HbA1c baseline 8.7 +/- 0.7, final 7.9 +/- 0.6	
	Control:	*Control: Mean =/- SE*	

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	no control group for knowledge	HbA1c baseline 8.7, final 8.5% +/- 0.57 (calculated from graph)	
Yoo 2009		*Intervention:*	Participants in the intervention group sent blood glucose recordings 1.84 0.31 times per day (compliance rate 92.2 15.4%)
		HbA1c: baseline: 7.6 (0.9), 3 months: 7.1(0.8)	and blood pressure 1.72 0.32 times per day (compliance rate 86.0 16.2%). Body weight measurements were sent
		BMI: baseline: 25.6 (3.5), 3 months: 25.1 (3.5)	0.87 0.20 times per day (compliance rate 87.4 20.1%).
		Total cholesterol: base 4.6 (0.8), 3 months 4.1 (0.7)	
		HDL: baseline 1.2 (0.3), 3 months 1.3 (0.3)	
		LDL: baseline 2.6 (0.7), 3 months 2.2 (0.6)	
		TG: baseline 1.46 [1.1, 2.1], 3 months 1.24 [0.8, 1.8]	
		Weight: baseline 66.4 (12.5), 3 months 65.3 (12.7) P = 0.002	
		Waist Circumference: baseline 89.5 (9.7), 3 months 86.8 (9.8) P < 0.001	
		Control:	
		HbA1c: baseline: 7.4 (0.9), 3 months: 7.6 (1.0)	
		BMI: baseline: 25.5 (3.3), 3 months: 25 (3.3)	
		Total cholesterol: base 4.5 (0.9), 3 months 4.5 (0.8)	
		HDL: baseline 1.2 (0.3), 3 months 1.3 (0.3)	
		LDL: baseline 2.4 (0.7), 3 months 2.3 (0.7)	
		TG: baseline 1.51 [1.1, 2.5], 3 months 1.59 [1.2, 2.4]	
		Weight: baseline 67.7 (10.8), 3 months 66.4 (10.4) P = 0.004	
		Waist Circumference: baseline 91.3 (7.5), 3 months 89.1 (7.6) P = 0.001	
Zhou 2003		*Intervention:*	
		HbA1c: Baseline: 8.66 (1.47), 8 weeks: 8.03 (1.09)	
		BMI: Baseline: 24.04 (3.10), 8 weeks: 23.12 (5.05)	
		Fasting blood glucose mmol/L: baseline: 7.72 (1.92), 8 weeks: 6.31 (1.00)	
		2 hour post-prandial blood glucose mmol/L: baseline: 10.436 (2.99), 8 weeks: 7.60 (1.68)	
		Total cholesterol mmol/L: Baseline: 5.01 (0.99), 8 weeks: 5.07 (1.01)	
		Triglycerides mmol/L: Baseline: 1.36 [0.99 - 1.87], 8 weeks: 1.28 [0.94- 1.67]	
		HDL cholesterol mmol/L: Baseline: 1.55 (0.40), 8 weeks: 1.509 (0.34)	
		LDL cholesterol mmol/L: Baseline: 3.06	

		(0.87), 8 weeks: 3.06 (0.80)	
		Urimary albumin excretion (mg/gr Cr): Baseline: 10.80 [6.60- 26.09], 8 weeks: 9.80 [5.61- 21.03]	
		Control:	
		HbA1c: Baseline: 8.97 (1.76), 8 weeks: 8.77 (1.74)	
		BMI: Baseline: 24.51 (2.82), 8 weeks: 24.46 (2.77)	
		Fasting blood glucose mmol/L: baseline: 7.80 (1.33), 8 weeks: 7.49 (1.34)	
		2 hour post-prandial blood glucose mmol/L: baseline: 10.46 (1.84), 8 weeks: 9.84 (2.41)	
		Total cholesterol mmol/L: Baseline: 5.26 (0.49), 8 weeks: 5.54 (1.02)	
		Triglycerides mmol/L: Baseline: 1.48 [1.06 - 1.96], 8 weeks: 1.52 [1.15- 2.18]	
		HDL cholesterol mmol/L: Baseline: 1.46 (0.31), 8 weeks: 1.50 (0.32)	
		LDL cholesterol mmol/L: Baseline: 3.20 (0.87), 8 weeks: 3.43 (0.91)	
		Urimary albumin excretion (mg/gr Cr): Baseline: 14.50 [6.85-41.80], 8 weeks: 14.15 [6.60- 30.35]	

[a,b]As stated in the publication

[c]Not stated as primary or secondary endpoint(s) in the publication

BMI: body mass index; C: control; DM: diabetes mellitus; GHb: glycated haemoglobin; HDL: high-density lipoprotein; HRQOL: health-related quality of life; I: intervention; LDL: low-density lipoprotein; MET-min: metabolic equivalent minutes; PHQ-9: patient health questionnaire; SDSCA: Summary of Diabetes Self-Care Activities; SD: standard error; SMBG: self-monitoring of blood glucose; TC total cholesterol; TG Triglycerides

SUPPLEMENTARY DATA

Supplementary Table 6. Risk of bias of individual studies.

Study	Sequence generation	Allocation concealment	Blinding	Incomplete outcome data	Selective reporting	Other bias
Christian 2008	**Low risk**	**Low risk**	*High risk*	**Low risk**	(Unclear risk)	(Unclear risk)
Glasgow 1997	**Low risk**	(Unclear risk)	(Unclear risk)	(Unclear risk)	(Unclear risk)	**Low risk**
Glasgow 2003	(Unclear risk)	(Unclear risk)	(Unclear risk)	(Unclear risk)	(Unclear risk)	(Unclear risk)
Glasgow 2005	(Unclear risk)	**Low risk**	*High risk*	(Unclear risk)	(Unclear risk)	**Low risk**
Glasgow 2006	(Unclear risk)	(Unclear risk)	(Unclear risk)	**Low risk**	(Unclear risk)	(Unclear risk)
Glasgow 2010	**Low risk**	(Unclear risk)	(Unclear risk)	**Low risk**	(Unclear risk)	**Low risk**
Leu 2005	**Low risk**	**Low risk**	*High risk*	(Unclear risk)	(Unclear risk)	**Low risk**
Lim 2011	(Unclear risk)	(Unclear risk)	*High risk*	**Low risk**	(Unclear risk)	**Low risk**
Lo 1996	(Unclear risk)	(Unclear risk)	*High risk*	(Unclear risk)	(Unclear risk)	**Low risk**
Lorig 2010	**Low risk**	(Unclear risk)	*High risk*	**Low risk**	(Unclear risk)	**Low risk**
Quinn 2008	(Unclear risk)	(Unclear risk)	*High risk*	(Unclear risk)	(Unclear risk)	(Unclear risk)
Quinn 2011	(Unclear risk)	(Unclear risk)	*High risk*	*High risk*	**Low risk**	(Unclear risk)
Smith 2000	(Unclear risk)	(Unclear risk)	*High risk*	(Unclear risk)	(Unclear risk)	(Unclear risk)
Wise 1986	*High risk*	(Unclear risk)	(Unclear risk)	(Unclear risk)	(Unclear risk)	**Low risk**
Yoo 2009	(Unclear risk)	(Unclear risk)	*High risk*	(Unclear risk)	(Unclear risk)	**Low risk**
Zhou 2003	(Unclear risk)	(Unclear risk)	(Unclear risk)	**Low risk**	(Unclear risk)	**Low risk**

SUPPLEMENTARY DATA

Supplementary Table 7. Strength of evidence.
Computer-based diabetes self-management interventions for adults with type 2 diabetes mellitus
Patient or population: participants with type 2 diabetes mellitus
Interventions settings: clinic-based (touch screen or other clinic computer), home computer-based and mobile phone-based interventions
Intervention: computer-based software applications that respond to user input and aim to generate tailored content to improve one or more of the cognitive, behaviour and skills and emotional self-management domains through feedback, tailored advice, reinforcement and rewards, patient decision support, goal setting or reminders
Comparison: standard diabetes care, non-interactive computer-based programmes, paper educational material, delayed start/waiting list, face-to-face diabetes self-management education
GRADE Working Group grades of evidence
High quality: Further research is very unlikely to change our confidence in the estimate of effect.
Moderate quality: Further research is likely to have an important impact on our confidence in the estimate of effect and may change the estimate.
Low quality: Further research is very likely to have an important impact on our confidence in the estimate of effect and is likely to change the estimate.
Very low quality: We are very uncertain about the estimate

Outcomes	No of participants	Quality of the evidence
	(studies)	**(GRADE)**
Health-related quality of life [follow-up: 2 to 18 months]	2113	⊕⊕⊕⊖
	(5)	**moderate**[a]
Death from any cause [follow-up: 2 to 18 months]	3578	⊕⊕⊕⊕
	(16)	**high**
Depression [follow-up: 2 to 18 months]	2273	⊕⊕⊕⊖
	(6)	**moderate**[b]
Adverse effects [follow-up: 2 to 12 months]	3578	⊕⊕⊕⊕
	(16)	**high**
Overall effect on HbA1c [%] [follow-up: 2 to 12 months]	2673	1. ⊕⊕⊕⊖
	(11)	**moderate**[c]
Mobile phone subgroup effect on HbA1c [%] [follow-up: 3 to 12 months]	280	2. ⊕⊕⊖⊖
	(3)	**low**[d]
Economic data [follow-up: 18 months]	761	⊕⊕⊖⊖
	(1)	**low**[e]

aSerious risk of bias
bSerious risk of bias
cInconsistency, indirectness
dSubgroup analysis, low number of participants, indirectness
eOne study only, serious risk of bias