Supplementary Material

Supplementary Table 1. Search strategy used to identify Embase

#	Searches
1	exp pregnancy diabetes mellitus/
2	(gestational diabetes or "diabetes in pregnancy" or GDM or "maternal diabetes").mp. [mp=title, abstract, heading word, drug trade name, original title, device manufacturer, drug manufacturer, device trade name, keyword, floating subheading word, candidate term word]
3	1 or 2
4	exp mobile phone/ or exp telephone/
5	exp mobile application/ or exp mobile health application/
6	exp smartphone/
7	exp telehealth/ or exp telemedicine/ or exp telecommunication/
8	e-mail/ or internet/ or social media/ or text messaging/ or blogging/
9	exp pedometer/
10	exp ambulatory monitoring/
11	exp computer/ or personal computer/ or exp personal digital assistant/
12	wearable computer/
13	exp audiovisual equipment/ or exp mp3 player
14	exp computer interface/
15	information processing/ or exp computer aided design/
16	(mobile or mobile phone* or mobile-phone* or mobilephone* or cellphone* or cell-phone* or cell phone or cellular phone* or "mobile electronic device" or phone? or telephone? or smartphone? or "smart phone?" or smart-phone? or smartphone-based or mobile app*).ti,ab.
17	(text messag* or textmessag* or text-messag* or multimedia messag* or multi-media messag* or "multi media messag*" or texting or sms or short messag* or mms or iphone? or "i phone*" or i-phone* or ipad* or "i pad*" or ipad*).ti,ab.
18	(tele-med* or telemed* or tele-health* or telehealth* or telecom* or tele-com* or telecare* or tele-care* or telemonitor* or tele-monitor* or teleGDM).ti,ab.
19	(mobile health or mobilehealth or mobile-health or mhealth or m-health or "m health" or "digital health" or digitalhealth or digital-health or "e health" or ehealth or ehealth).ti,ab.
20	(internet* or digital* or web* or "internet forum" or Facebook or "wireless device?" or online*).ti.
21	((internet* or web*) adj based).ti,ab.
22	(computer* or laptop* or palmtop* or palm-top* or palm top* or multimedia or tablet? or PDA or "personalised digital assistant" or "enterprise digital system" or "mobile operating system" or hand-held computer? or handheld computer? or "hand held computer?" or website* or "personal computer?" or "body-worn sensor?" or "body worn sensor?" or accelerometer? or smartwatch* or smartwatch* or smart-monitor* or smartmonitor* or smart-track* or smarttrack* or smart-mobile* or smartmobile*).ti,ab.
23	(pedometer* or "ambulatory monitoring" or mobile technolog* or mobile communication? or "mobile computing" or health technolog* or bluetooth technolog* or health app* or mp3 player).ti,ab.
24	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
25	exp randomized controlled trial/ or exp controlled clinical trial/

26	crossover-procedure/ or double-blind procedure/ or randomized controlled trial/ or single-blind procedure/ or (random* or factorial* or crossover* or cross over* or placebo* or (doubl* adj blind*) or (singl* adj blind*) or assign* or allocat* or volunteer*).tw.
27	25 or 26
28	3 and 24 and 27
29	(exp animals/ or nonhuman/) not human/
30	28 not 29

Supplementary Table 2. Search strategy used to identify

Database	Interface	Coverage	Date	Hits
Embase	OvidSP	1974-present	17/02/2020	344
Medline	OvidSP	1846-present	17/02/2020	335
CINAHL	EBSCOHost	1982-present	17/02/2020	128
PsycINFO	OvidSP	1806-present	17/02/2020	25
Cochrane Central Register of Controlled Trials	Cochrane Library, Wiley	Issue 5 of 12, March 2019	17/02/2020	51
Cochrane Database of Systematic Reviews	Cochrane Library, Wiley	Issue 5 of 12, March 2019	17/02/2020	15
Total:				898

Supplementary Table 3. Criteria used to diagnose gestational diabetes mellitus (GDM) in included trials

	OGTT load	Fasting (mmol/L)	1-hour OGTT (mmol/L) – 75g	2-hour OGTT (mmol/L) – 75g	3-hour OGTT (mmol/L) – 75g
NICE 2015	75g	≥5.6	-	≥7.8	-
WHO 2013	75g	5.1-6.9	≥10	8.5-11	-
IADPSG 2010	75g	≥5.1	≥10	≥8.6	-
NDDG	100g	≥5.8	≥10.6	≥9.2	≥8.1
Carpenter and Coustan (1982)	100g	≥5.3	≥10	≥8.5	≥7.8

Abbreviations: IADPSG = international association of diabetes in pregnancy study groups; NDDG = national diabetes data group; NICE = National institute of Care and Excellence, OGTT = oral glucose tolerance test; WHO = World Health Organisation

Supplementary Table 4. The nature of the digital and telemedicine interventions delivered by each trial.

Trial	Start point	Provider	Basis for intervention	Tailored	Activity/information provided by intervention						
					Education	Goals	Feedback	Counselling	Reminders	Tips	Motivation
Digital											
Carolan-Olah, 2019	During pregnancy	Researcher, dietician	National guidelines	n/a	X		x				
Hogan, 2019	During pregnancy	Dietician	Australian dietary guidelines	Yes	x	x		x	x		x
Holmes, 2019	Postpartum	Health educator	Adapted from DPP	Yes	x	x			x		x
Kim, 2012	Postpartum	-	-	Yes	x	x	x			x	
Mcmanus, 2018	During pregnacy/ early postpartum	Study coordinator	Harm reduction model	n/a	x	x					
Nicklas, 2014	Postpartum	Lifestyle coach (dietician)	Adapted from DPP, patient-centred model	Yes	x	x		x		x	
Peacock, 2015	Postpartum	Dietician	National guidelines	Yes	x	x	x	x		x	
Telemedicine											
Ferrara, 2011	During pregnancy	Dietician, lactation consultant	Adapted from DPP, National guidelines	Yes	x	x		x			
Ferrara, 2016	During pregnancy	Lifestyle coach (dietician)	Adapted from DPP, National guidelines	Yes	x	x		x		x	x

Jelsma, 2018	During pregnancy	Lifestyle counsellor	Patient - centred model	Yes	x	x	x		
McIntyre, 2012	Postpartum	Exercise physiologist	Social cognitive theory	Yes		x	x		x
Reinhardt, 2012	During pregnancy	Diabetes educators		Yes	x	x	x		x

Abbreviations: SMS, short message service; DPP, Diabetes Prevention Program. Key: Boxes indicated by an 'x' suggest the activity or information was provided by the intervention.

Supplementary Table 5. Primary and secondary outcomes investigated by individual trials

	Primary outcome	Secondary outcome
Digital		
Borgen, 2019	Routine 3-month 2hr OGTT	Delivery and infant outcomes, engagement with the app
Carolan-Olah, 2019	Weight loss	BMI, BP, glycaemic levels
Cheung, 2019	Proportion meeting physical activity and dietary guidelines, attending 12 week OGTT, weight change	Calorie intake, saturated fat, fibre per 1000 calories, total activity time, pedometer count, feasibility, protocol implementation
Holmes, 2018	Weight loss	BMI, waist and hip circumference, fat mass, FPG, OGTT, fasting serum insulin, exercise self-efficacy
Kim, 2012	Change in FPG and 2-hr OGTT (from baseline)	Weight, behavioural constructs (e.g. social support, risk perception), diet (intake via 7-day food diary)
McManus, 2018	≥7% weight reduction	HbA1c, diet (survey of intake) and lifestyle, participation retention, predictors of engagement
Niklas, 2014	Weight loss (from baseline)	Calorie intake, physical activity, BMI
Peacock, 2015	Weight loss (from baseline)	Waist and hip circumference, insulin sensitivity, body composition, physical activity, self-efficacy in eating behaviours, diet (quality of diet assessed)
Telemedicine		
Ferrara, 2011	Proportion reaching pre-pregnancy weight or 5% reduction (if pre-pregnancy BMI >25)	% calories from fat, moderate-to-vigorous physical activity, breastfeeding
Ferrara, 2016	Proportion reaching pre-pregnancy weight or 5% reduction (if pre-pregnancy BMI >25)	Diet (daily intake, % calories from fat), moderate-to-vigorous physical activity, volume of physical activity, postpartum prediabetes and diabetes incidence
Hedderson, 2019	Daily total energy intake, % calories from fat, MET hours/week of moderate intensity physical activity, weight change	-
Jelsma, 2018	Barriers for PA, social support for PA, self-efficacy for PA	-
McIntyre, 2012	Planned PA, change in reported PA	Change in insulin resistance (HOMA-IR), weight, BMI, waist circumference, % body fat, FPG
Reinhardt, 2012	BMI, diet (fat, saturated fat, fibre, carb % intake), PA, waist circumference	-

Abbreviations: BMI, body mass index; BP, blood pressure; FPG, fasting plasma glucose; HOMA-IR, homeostatic model assessment of insulin resistance; MET, metabolic equivalents; OGTT, oral glucose tolerance test; PA, physical activity

Supplementary Table 6. Changes from baseline to follow-up across the included trials. Trials that did not report weight, BMI or FPG are omitted for clarity. Values given are mean (SD) of within group change, p values are between group values unless otherwise stated, and bold typeface indicates a significant difference (p<0.05).

Author, year	N		Weight, kg		p	BMI, kg/m^2		p	FPG, mmol/L		P
	IG	CG	IG	CG		IG	CG		IG	CG	
Carolan-Olah, 2019	52	58	-	-	- *	-1.0	-1.2	0.395	- †	- †	-
Cheung, 2019	40	20	-1.7 (4.1)	1.1 (3.3)	0.47	-	-	-	-	-	-
Holmes, 2018	29‡	31§	-3.9 (7.0)	0.7 (3.9)	**0.02**	-1.4 (2.7)	0.2 (1.4)	**0.03**	0.2 (0.5)	0.1 (0.4)	0.49
Kim, 2012	21	28	-1.5 (3.4)	-0.14 (2.2)	0.13	0.53 (1.3)	-0.07 (0.82)	0.16	0.038 (0.62)	0.046 (0.57)	0.65
McManus, 2018	50	47	1.2 (6.88) ||	-1.1 (5.0)	0.775 ¶	-0.1 (3.06)	-1.0 (2.07)	0.645 #	-	-	-
			0.3 (8.14) ¶	-3.1 (4.98)	0.579 ¶	-0.5 (3.36)	-0.9 (2.08)	0.411 #	-	-	-
Niklas, 2014	36	39	-2.6 (5.32) **	1.5 (5.71)	**0.002**	-0.99 (2.96)	0.5 (1.54)	**0.004**	-	-	-
			-3.0 (5.76) ¶	1.0 (5.71)	**0.004**	-1.11 (3.40)	0.2 (2.16) 0	**0.029**	-	-	-
Peacock, 2015	11	12	2.5 (1.4) ††	0.0 (2.3) ††	**0.002**	0.9 (0.7)	0.0 (0.8)	**0.002**	0.3 (0.5)	-0.1 (0.6)	0.052
Ferrara, 2011	71	88	0.38	0.239	0.13‡ ‡	-	-	-	-	-	-
	72	84	0.375	0.214	0.07¶	-	-	-	-	-	-

Ferrara, 2016	764	875	0.39 (5.55)	0.95 (5.47)	0.01‡ ‡	-	-	-		
	676	744	0.2 (5.84)	0.5 (5.43)	0.12¶	-	-	-		
McIntyre, 2012	14	11	0.97 (3.7)	0.22 (4.2)	>0.05	-	-	-	0.25 (0.56)	0.12 (0.42)	>0.05
Reinhardt, 2012	18	20	-1.2 (5.17)	3.3 (3.06)	**<0.05**	-1.2 (2.71)	1.1 (1.39)	**<0.05**	-	-	-

* Authors do not report numerical changes in weight but do report that significantly more women in the intervention group decreased their weight from baseline to follow-up post-intervention (p≤0.000)

† Authors record FPG at a point during pregnancy and a point post-partum (follow up), rather than from a point post-partum and at subsequent follow-up

‡ Available data: weight, BMI n=20; FPG n=19;

§ Available data: weight n =25; BMI n=24; FPG, OGTT n=21

|| 3-month follow up

¶ 12-month follow-up

ANCOVA = analysis of co-variance

** 6-month follow-up

†† Median and interquartile range

‡‡ 7-month follow-up