

Appendix 1: PubMed and Cochrane Central Register of Controlled Trials search strategy

We searched for RCTs published within the last five years, using the following search string **in PubMed**: ("Diabetes Mellitus, Type 1"[Mesh] OR (diabetes mellitus type 1) OR (diabetes type 1) OR (type 1 diabetes)) AND ((sensor-augmented pump therapy) OR (sensor-augmented insulin pump) OR (sensor-augmented pump) OR (low-glucose suspend) OR (predictive low-glucose insulin suspension) OR (continuous glucose monitoring) OR (continuous glucose monitor) OR (continuous glucose monitoring system) OR (real-time continuous glucose monitoring) OR (flash glucose monitoring) OR (flash continuous glucose monitoring) OR (intermittently scanned continuous glucose monitoring) OR (intermittently viewed continuous glucose monitoring) OR (closed-loop insulin delivery) OR (hybrid closed-loop) OR (hybrid closed-loop insulin-delivery system) OR (artificial pancreas) OR (single-hormone artificial pancreas) OR (dual-hormone artificial pancreas)) AND Randomized Controlled Trial[ptyp] AND "last 5 years"[PDat]. **The same search terms were used for the search in the Cochrane Database.**

Appendix 2: Scoring the methodological quality of RCTs

Study	1	2	3	4	5	6	7	8	9	10	11	Total	%
Burckhardt MA, 2018 (1)	+	+	-	NR	NR	NR	+	+	-	+	+	6/11	55
Tauschmann M, 2018 (2)	+	+	-	NR	+	+	+	+	+	-	+	8/11	73
Reddy M, 2018 (3)	+	+	-	NR	+	+	+	+	+	+	+	7/11	82
Ólafsdóttir AF, 2018 (4)	+	NR	-	NR	+	+	+	+	+	-	NR	6/11	55
Heinemann L, 2018 (5)	+	+	-	-	+	+	+	+	NR	-	+	7/11	64
Oskarsson P, 2017 (6)	+	+	-	NR	+	+	+	+	+	-	NR	7/11	64
Reddy M, 2017 (7)	+	+	-	NR	+	+	+	+	+	+	+	9/11	82
Abraham MB, 2018 (8)	+	+	-	NR	+	+	+	+	+	+	+	9/11	82
Polonsky WH, 2017 (9)	+	+	-	NR	+	+	+	+	+	-	+	8/11	73
Barnard KD, 2017 (10)	+	NR	-	NR	NR	+	+	+	+	+	-	6/11	55
Lind M, 2017 (11)	+	+	-	NR	+	+	+	+	+	-	-	7/11	64
Beck RW, 2017 (12)	+	+	-	NR	+	+	+	+	+	-	+	8/11	73
van Beers CA, 2016 (13)	+	+	-	NR	NR	+	+	+	+	-	+	7/11	64

Bolinder J, 2016 (14)	+	+	-	-	-	+	+	+	+	-	-	6/11	55
Thabit H, 2015 (15)	+	+	-	-	-	+	+	+	+	-	+	7/11	64
Hommel E, 2014 (16, 17)	+	+	-	NR	NR	+	+	+	-	-	+	6/11	55
Little SA, 2014 (18, 19)	+	+	-	NR	+	+	+	+	+	+	+	9/11	82
Little SA, 2018 (18, 19)	+	+	-	NR	+	+	+	+	+	+	+	9/11	82
Tumminia A, 2015 (20)	+	+	-	-	+	-	+	+	+	+	-	7/11	64

[1] Adequate randomization: Was the allocation of the intervention to patients randomised?

[2] Those who allocated the patients should be unaware of the randomization (sequence). Was that the case?

[3] Were patients and clinicians blinded to the treatment?

[4] Were the effect assessors (researchers) blinded to the treatment?

[5] Baseline similarity: Were the groups (treatment and control) at the beginning of the trial comparable? If not, is there a correction for it in the analysis?

[6] Withdrawals and drop outs: Is there a complete follow-up available of an adequate proportion of all included patients? If not, is selective loss to follow-up sufficiently excluded? (<20% for short term follow up and <30% for intermediate and long-term follow-up)

[7] Are all enrolled patients analysed in the groups to which they were randomised?

[8] Are the groups, apart from the intervention, treated equally? (Co-intervention: standardised or avoided)

[9] Is selective publication of results sufficiently excluded?

[10] Is inappropriate influence of sponsoring sufficiently excluded?

[11] Are the results analysed by the 'intention to treat' principle?

NR = not reported

Appendix 3: Quality of evidence

<i>Outcome measures</i>	<i>Intervention</i>	<i>Studies</i>	<i>Population</i>	<i>Level of evidence</i>	<i>Quality of evidence</i>
HbA1c	isCGM = SMBG	Oskarsson P, 2017 (6)	Adults	Moderate B	Level 3
		Bolinder J, 2016 (14)	Adults	Moderate B	
	RT-CGM = isCGM	Reddy M, 2018 (3)	Adults	High A2	Level 3
		Reddy M, 2017 (7)	Adults	High A2	
	RT-CGM > SMBG	Lind M, 2017 (+) (11)	Adults	Moderate B	Level 2
		Beck RW, 2017 (+) (12)	Adults	High A2	
		Tumminia A, 2015 (+) (20)	Adults	Moderate B	
	RT-CGM = SMBG	Burckhardt MA, 2018 (1)	Children & Parents	Moderate B	Level 2
		Heinemann L, 2018 (5)	Adults	Moderate B	
		Little SA, 2018 (+) (19)	Adults	High A2	

		van Beers CA, 2016 (13)	Adults	Moderate B	
		Little SA, 2014 (18)	Adults	High A2	
	HCL/PLGS = SAP	Abraham MB, 2018 (8)	Children	High A2	Level 3
	HCL/PLGS > SAP	Tauschmann M, 2018 (+) (2)	Adults & Children	High A2	Level 2
		Thabit H, 2015 (+) (15)	Adults	Moderate B	
Time in target	RT-CGM > isCGM	Reddy M, 2018 (-) (3)	Adults	High A2	Level 3
		Reddy M, 2017 (-) (7)	Adults	High A2	
Time in range	isCGM > SMBG	Oskarsson P, 2017 (+) (6)	Adults	Moderate B	Level 3
		Bolinder J, 2016 (+) (14)	Adults	Moderate B	
	RT-CGM > isCGM	Reddy M, 2018 (+) (3)	Adults	High A2	Level 3
		Reddy M, 2017 (±) (7)	Adults	High A2	
	RT-CGM > SMBG	Heinemann L, 2018 (±) (5)	Adults	Moderate B	Level 2
		Beck RW, 2017 (+) (12)	Adults	High A2	
		van Beers CA, 2016 (+) (13)	Adults	Moderate B	

	HCL/PLGS > SAP	Tauschmann M, 2018 (+) (2)	Adults & Children	High A2	Level 2
		Thabit H, 2015 (+) (15)	Adults	Moderate B	
Time in hypoglycaemia	isCGM > SMBG	Oskarsson P, 2017 (+) (6)	Adults	Moderate B	Level 3
		Bolinder J, 2016 (+) (14)	Adults	Moderate B	
	RT-CGM > isCGM	Reddy M, 2018 (+) (3)	Adults	High A2	Level 3
		Reddy M, 2017 (+) (7)	Adults	High A2	
	RT-CGM > SMBG	Ólafsdóttir AF, 2018 (+) (4)	Adults	Moderate B	Level 2
		Heinemann L, 2018 (+) (5)	Adults	Moderate B	
		Lind M, 2017 (-) (11)	Adults	Moderate B	
		Beck RW, 2017 (+) (12)	Adults	High A2	
		van Beers CA, 2016 (+) (13)	Adults	Moderate B	
	RT-CGM = SMBG	Little SA, 2018 (+) (18)	Adults	High A2	Level 3
		Little SA, 2014 (+) (19)	Adults	High A2	

	HCL/PLGS > SAP	Abraham MB, 2018 (+) (8)	Children	High A2	Level 1
		Tauschmann M, 2018 (±) (2)	Adults & Children	High A2	
		Thabit H, 2015 (±) (15)	Adults	Moderate B	
Quality of life	isCGM > SMBG	Oskarsson P, 2017 (+) (6)	Adults	Moderate B	Level 3
		Bolinder J, 2016 (+) (14)	Adults	Moderate B	
	RT-CGM > isCGM	Reddy M, 2018 (+) (7)	Adults	High A2	Level 3
		Reddy M, 2017 (+) (7)	Adults	High A2	
	RT-CGM > SMBG	Burckhardt MA, 2018 (+) (1)	Children & Parents	Moderate B	Level 1
		Ólafsdóttir AF, 2018 (+) (4)	Adults	Moderate B	
		Heinemann L, 2018 (-) (5)	Adults	Moderate B	
		Polonsky WH, 2017 (+) (9)	Adults	High A2	
		Lind M, 2017 (+) (11)	Adults	Moderate B	

	RT-CGM ≥ SMBG	Hommel E, 2014 (+) (17)	Adults & Children	Moderate B	Level 3
	RT-CGM = SMBG	Little SA, 2018 (+) (19)	Adults	High A2	Level 2
		van Beers CA, 2016 (13)	Adults	Moderate B	
		Little SA, 2014 (+) (19)	Adults	High A2	
	HCL/PLGS = SAP	Abraham MB, 2018 (8)	Children	High A2	Level 1
		Tauschmann M, 2018 (2)	Adults & Children	High A2	
		Barnard KD, 2017 (10)	Adults & Children	Moderate B	

'(+)': Significant evidence $p < 0,05$

'(-)': Non-significant evidence $p \geq 0,05$

One intervention > other intervention: this means that the first intervention shows better results than the second

One intervention = other intervention: this means that the first intervention shows the same results as the second

One intervention < other intervention: this means that the first intervention shows worse results than the second

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