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V.2.1

One month FCL using Automations:

Glucose distribution (31 days total, Wednesday 6.10.2021 - Friday 5.11.2021)

Range	% of Readings	# of Readings	Average	Median	Standard Deviation	A1c estimation*
Low (<70):	1.3%	116	64.2	65.0	4.0	
In Range:	93.7%	8340	114.0	109.0	24.3	
High (>=180):	5.0%	446	206.4	201.0	22.0	
Overall:		8902	118.0	111.0	32.0	5.7%DCCT | 39IFCC

Mean Total Daily Change	Time in fluctuation (>5 mg/dl/5m)	Time in rapid fluctuation (>10 mg/dl/5m)
846.7 mg/dl	14.0%	3.0%

Mean Hourly Change	GVI	PGS
35.28 mg/dl	1.25	9.29

Out of Range RMS
7.75 mg/dl

One month FCL using autoISF (V. 2.8, so without the V.3.0 ff extra features):

Glucose distribution (31 days total) 06.10.2022 – 05.11.2022

Range	% of Readings	# of Readings	Average	Median	Standard Deviation	A1c estimation*
Low (<70):	2.4%	211	62.5	64.0	6.0	
In Range:	92.8%	8152	113.3	109.0	25.0	
High (>=180):	4.8%	419	205.7	196.0	27.0	
Overall:		8782	116.5	110.0	32.8	5.7%DCCT 39IFCC

Mean Total Daily Change	Time in fluctuation (>5 mg/dl/5m)	Time in rapid fluctuation (>10 mg/dl/5m)
936.76 mg/dl	16.0%	4.0%

Mean Hourly Change	GVI	PGS
39.03 mg/dl	1.29	10.77

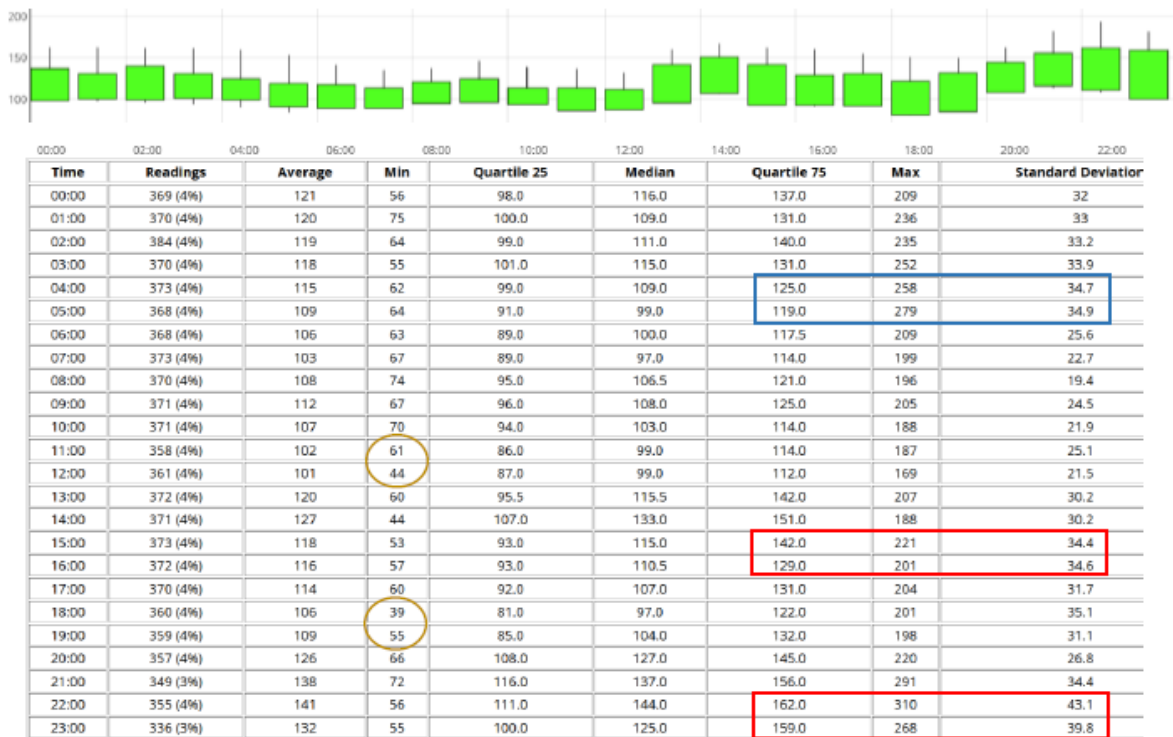| Out of Range RMS |
|---|
| 8.37 mg/dl |

Automation results are for a month, after being 1 year in that mode. autoISF results are from 1 month after being 9 month in that mode.

11 So both were tuned; however, autoISF is so complicated to tune that I stopped when it

12 deemed good-enough, which 93% TIR certainly is. (Note that, in both cases, these 93%-

13 94%TIR „accomodate" the occasional day with TIR around 80% because of a not

14 immediately detected occlusion!). While Automations can be clearly directed at time-windows

15 where meals occur, autoISF (at that time, 2022) is burdened by it applying uniformly to 24

16 hrs, unless an un-even TT is set to shut-off SMBs temporarily.

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Detail-comparison (hourly stats for 1 month, Automation (top) vs autoISF (bottom):

Time	Readings	Average	Min	Quartile 25	Median	Quartile 75	Max	Standard Deviation
00:00	372 (4%)	111	55	96.0	109.0	127.0	167	21.1
01:00	365 (4%)	113	55	94.0	110.0	130.0	215	26.7
02:00	383 (4%)	111	53	92.0	108.0	125.0	238	30.9
03:00	367 (4%)	111	58	94.0	107.0	119.0	246	30
04:00	372 (4%)	112	69	88.0	104.0	116.5	254	39.9
05:00	372 (4%)	107	73	89.0	98.0	107.0	237	33.4
06:00	372 (4%)	102	72	86.0	97.0	107.0	182	23.6
07:00	372 (4%)	102	71	91.0	97.0	107.0	191	19.8
08:00	365 (4%)	104	76	97.0	103.0	111.0	188	15.1
09:00	363 (4%)	118	74	103.0	114.0	126.0	250	25
10:00	372 (4%)	118	62	98.0	108.0	122.5	285	38.8
11:00	372 (4%)	112	71	96.0	106.0	120.0	256	28
12:00	372 (4%)	107	56	93.0	102.0	118.0	179	23.6
13:00	372 (4%)	126	58	95.0	125.5	153.0	223	37.8
14:00	371 (4%)	135	61	111.0	137.0	157.0	216	34.8
15:00	368 (4%)	135	62	110.0	128.0	158.0	239	38
16:00	372 (4%)	133	60	105.0	123.5	150.5	243	41.1
17:00	372 (4%)	121	62	98.0	116.5	140.5	229	31.5
18:00	372 (4%)	119	67	98.0	116.0	142.0	193	27.1
19:00	372 (4%)	116	75	98.0	111.0	131.0	191	25.5
20:00	372 (4%)	130	64	106.0	130.0	151.0	232	29.3
21:00	372 (4%)	139	68	118.0	134.0	158.0	248	30.7
22:00	372 (4%)	125	65	108.0	126.0	146.0	203	26.1
23:00	360 (4%)	113	59	91.0	110.0	132.0	226	27.9

18

Time	Readings	Average	Min	Quartile 25	Median	Quartile 75	Max	Standard Deviation
00:00	369 (4%)	121	56	98.0	116.0	137.0	209	32
01:00	370 (4%)	120	75	100.0	109.0	131.0	236	33
02:00	384 (4%)	119	64	99.0	111.0	140.0	235	33.2
03:00	370 (4%)	118	55	101.0	115.0	131.0	252	33.9
04:00	373 (4%)	115	62	99.0	109.0	125.0	258	34.7
05:00	368 (4%)	109	64	91.0	99.0	119.0	279	34.9
06:00	368 (4%)	106	63	89.0	100.0	117.5	209	25.6
07:00	373 (4%)	103	67	89.0	97.0	114.0	199	22.7
08:00	370 (4%)	108	74	95.0	106.5	121.0	196	19.4
09:00	371 (4%)	112	67	96.0	108.0	125.0	205	24.5
10:00	371 (4%)	107	70	94.0	103.0	114.0	188	21.9
11:00	358 (4%)	102	61	86.0	99.0	114.0	187	25.1
12:00	361 (4%)	101	44	87.0	99.0	112.0	169	21.5
13:00	372 (4%)	120	60	95.5	115.5	142.0	207	30.2
14:00	371 (4%)	127	44	107.0	133.0	151.0	188	30.2
15:00	373 (4%)	118	53	93.0	115.0	142.0	221	34.4
16:00	372 (4%)	116	57	93.0	110.5	129.0	201	34.6
17:00	370 (4%)	114	60	92.0	107.0	131.0	204	31.7
18:00	360 (4%)	106	39	81.0	97.0	122.0	201	35.1
19:00	359 (4%)	109	55	85.0	104.0	132.0	198	31.1
20:00	357 (4%)	126	66	108.0	127.0	145.0	220	26.8
21:00	349 (3%)	138	72	116.0	137.0	156.0	291	34.4
22:00	355 (4%)	141	56	111.0	144.0	162.0	310	43.1
23:00	336 (3%)	132	55	100.0	125.0	159.0	268	39.8

Lunch performance better in autoISF*. With Automation*. WIth autoISF more lows right before meals. Night performance similar.   * My breakfast is usually a minor snack

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Conclusion

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FCL with Automations can be a comparably good solution to autoISF.

The latter is more adjustable, especially towards higher SMB sizes that may be needed, for instance by users with richer diets, or with smaller hourly basal.

Also, **this study was done prior to autoISF 3.0 which comes with significant refinements**, e.g. activity monitor, exercise mode and dynamic iobTH.

Still, for many users the easier Automation route might yield good enough results, notably with low to medium carb diets, while sharply reducing the risks from not optimal settings in autoISF.

31