

## Case Study 6.2: Biking day with high carb lunch

bernie 04 Oct 2023 V.2.1



I set for most of the day a **70% profile**, and had only a minimal breakfast in order to keep iob low when starting to bike.

Additionally I activated the exercise mode, using a **TT=125 mg/dl** which I kept running over lunch time, but for a shorter period than the 70% profile.

About an hour before lunch time I reverted to profile target, and after lunch start an Automation can temporarily further lower the TT to 74 mg/dl to maximize first SMBs for the intended high carb lunch.

In just seconds I was able to „frame“ the upcoming exceptional situation for my loop, to manage me fully automatically through the day!

Of course, in my initial set-up and tuning, I had to first „learn“ from my looping data, where about %profile and set TT should lie for the kind of exercise that I was up to. But, no need to make a science out of it. Unless you are competing in professional sports, it should be good enough to go by gut feeling, and by experience („what setting should I slightly alter the next time?“).

Using the top button row on the AAPS main screen, I just input the 70% (for the whole day) and 125 mg/dl (for the first hours), which goes super fast and easy. It will immediately turn

- from all three fields grey,
- to „70%..“ on the profile field-turned-yellow, „125 .. „ in the TT field-turned-yellow, and also the exercise field lit yellow in the middle.

So, very easy to see on one glance, I am in the exercise mode, and which are the key settings (see picture with „95“ glucose below).

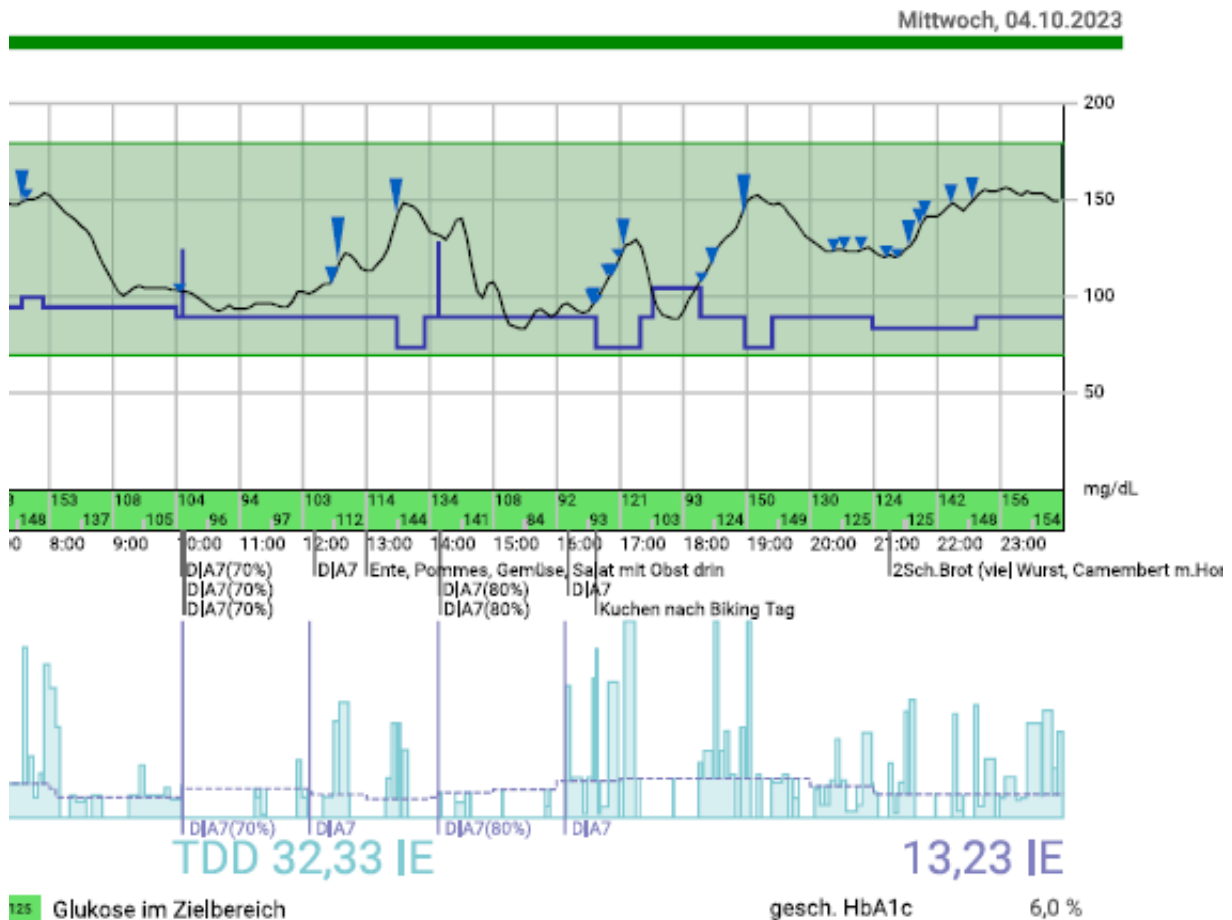
And in case I want to prematurely exit, or adjust a parameter, same easy procedure, just within 1-2 seconds, right from my AAPS home screen.

A **70% profile** was set for the entire day until dinner (AAPS screenshot) This modulates my 0.55 U profile basal to  $0.7 * 0.55 = 0.39$  U (see [p.9, emulator-line 20](#))

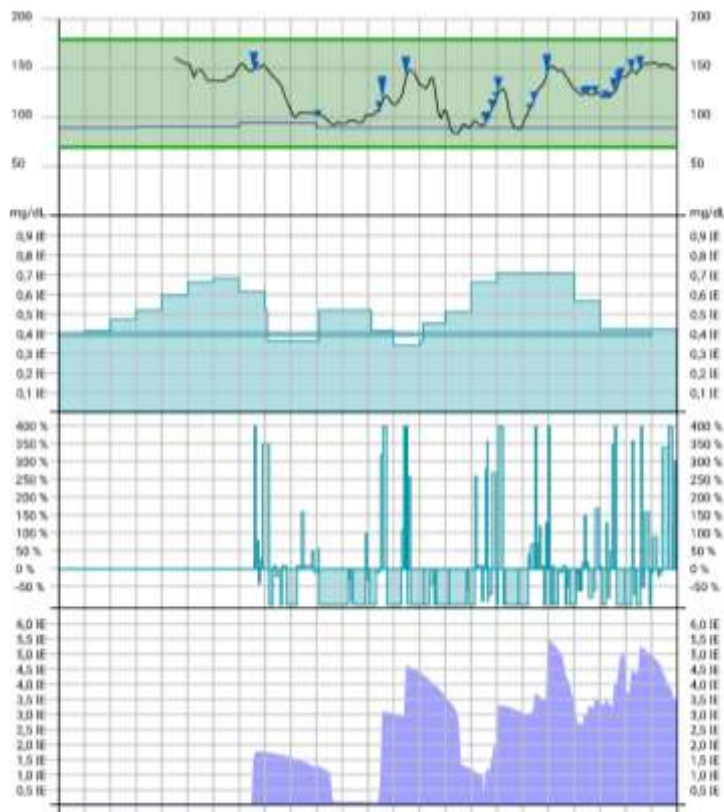
**Exercise mode** with a **125 mg/dl TT** was set, translating into another (= getting multiplied) basal reduction of 33%%, to 67% of (70% of 0.55=)0.39U= 0.26 U ([p.9, emulator-line 19](#)).

The exercise mode also results in a **dynamic\_iobTH** which, like basal, also goew lower:

33 These measures lead to a pretty overall glucose curve for this biking day, which included a  
 34 fairly substantial lunch (duck, french fries, a fancy salad with fruit in it), as well a piece of  
 35 cake at the end of the tour:



36  
 37  
 38 No carbs were entered into AAPS, no bolus was given by me.  
 39 The lunch iob hump in middle of the bottom graph of the next chart (below) shows that the  
 40 4.4 U iobTH was preventing higher iob as would be normal for a big lunch.



### Conclusions from this example

The example demonstrated that using the **exercise mode with a selected sports TT** will soften the loop response.

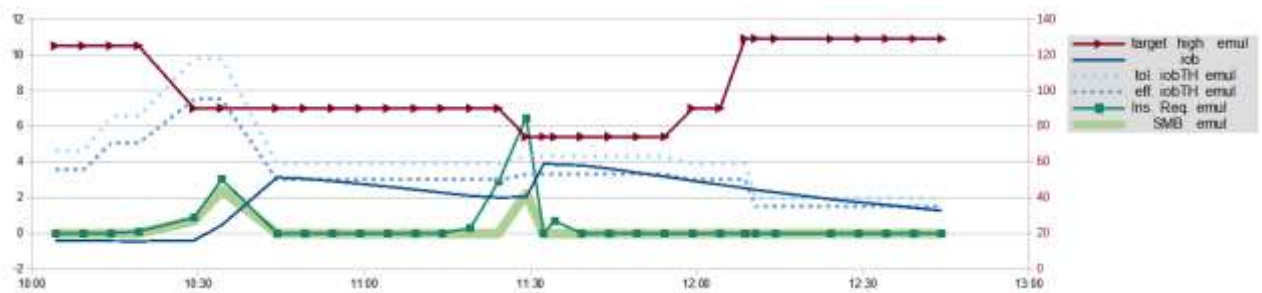
Background, how sensitivity ratio is automatically reduced (-> lower basal, higher ISF), and how dynamic\_iobTH works in the exercise mode (-> lower iobTH, to reduce iob for meals on exercise days) see [sections 3.3 and 6.4](#). The delta (how much higher the set exercise target is above profile target), and the half-basal-exercise target set in AAPS/preferences during your initial set-up define the sensitivity ratio the loop uses.

profile Target	100	100	100
halfBasalTarget	180	150	120
delta "c"	80	50	20
TempTarget	Sens. Ratio for HBT 180	Sens. Ratio for HBT 150	Sens. Ratio for HBT 120
72	1,54	2,27	n.a.
76	1,43	1,92	
80	1,33	1,67	n.a.
85	1,23	1,43	4,00
90	1,14	1,25	2,00
95	1,07	1,11	1,33
100	1,00	1,00	1,00
110	0,89	0,83	0,67
120	0,80	0,71	0,50
130	0,73	0,63	0,40
140	0,67	0,56	0,33
150	0,62	0,50	0,29
160	0,57	0,45	0,25
170	0,53	0,42	0,22
180	0,50	0,38	0,20

**Table:** Your general set half-basal exercise target set in Preferences (its distance to the valid profile target), and what TT you set in your exercise mode, lets you differentiate the desired loop aggressiveness.

Note that the **reduced temp.% profile** (on top of using the exercise mode with an elevated TT) multiplies with the results in above table, and further reduces basal *but not* iobTH. Dynamic\_iobTH is strictly tied to the exercise mode and TT set.

59



60

61 This chart from an emulator based analysis (by ga-zelle) shows nicely how iobTH (dotted  
62 blue lines) changes with the TT set (red line, and scale with red numbers on the right):

63 Shortly after 11:30 h the 74 mg/dl EatingSoonTT allows SMBs when below about 4U iob,  
64 And in fact my iob (blue curve) was limited, despite a high carb meal, at that level.

65 Around 12:00 h TT 74 expired and profile target briefly was set, followed within a couple of  
66 minutes by switching back (as before 10:15 h in the morning biking time) to the 125 mg/dl  
67 exercise TT. This state allows only about 2 U as iobTH (see kink in the blue dotted line at  
68 12:10 h), and my iob (blue curve) came nicely down to that low level, as desirable for sports  
69 - but sure unusual so shortly after eating a substantial meal.

70 Not astonishingly, few SMBs are in the picture (fat green line mostly at zero) and the loop  
71 can handle carbs in an exercise dominated period nearly by just elevating basal (%TBR up to  
72 400%). (Actually, the very first graph shows for around 13:30 glucose from the meal had  
73 risen to about 140 mg/dl and one additional SMB was necessary, and was also possible  
74 because from around 12:45 the iob (blue line) was below the (dotted blue line: lowered)  
75 iobTH again, as this graph shows.

76

## 77 [Reaching and preserving good settings](#)

78 For their kinds of favourite exercise, users must, over time, learn what combination of  
79 settings (half-basal\_exercise\_target,TT, %profile) leads to good-enough results.

80 As the loop re-calculates every 5 minutes, it is *not* important to get things *exactly* right.  
81 Automatic adjustments (every 5 minutes) allow the loop to still keep things under good-  
82 enough control.

83 The time windows for doing the profile switch, and for setting a suitable TT can differ (and  
84 they can also be automated, so not to require multiple inputs over the course of your  
85 exercise day). Using all available tools allows a nearly surgical approach to what you want to  
86 achieve for your favourite type(s) of exercise.

Instead of memorizing settings that work for your favourite types of exercise, you could keep them “shelved” in your AAPS to be called up when you do this or a similar exercise again.

For the DIY FCL cockpit you preserve your settings in Automations. A proposed improved user interface might provide settings also to be earmarked and stored in /preferences.

## DIY FCL Cockpit

Luckily, the Automation options that are incorporated in AAPS 3.2... x autoISF 3... allow me to to create the cockpit elements for this case on my own:

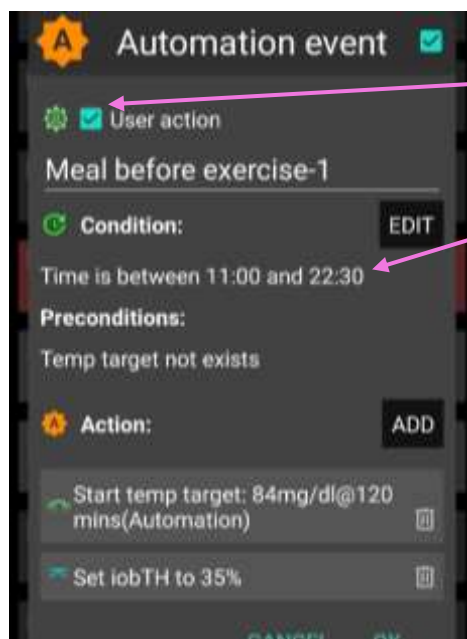
- I detected this only afterwards, but I have it now available for any future similar exercise-after-meal events -

I need a sequence of 3 Automations, of which only the first one must be manually triggered, in just one time-uncritical key stroke from the AAPS home screen.

The others come on automatically when the respective Conditions are met.

### Automation 1

The key first task was, to approach a meal that precedes exercise with full loop aggressiveness, but to make sure that this aggressiveness stops immediately after a (reduced) iobTH is exceeded. The reduced iobTH ensures that not too much insulin is on board for exercise after the meal. Also it provides an elevated bg level at (re-)start of exercise.



„User action“ is always ticked-on

This will, in the defined time space \*) ..

..offer the “DIY cockpit” button..

..which I must press any time (~90...30 minutes) before my lunch.



illustrative chart from another day

In this Automation, the box “User action” should be permanently ticked. This will automatically provide a grey button on the bottom of my AAPS home screen (“DIY cockpit”) that I can freely name (= headline of my Automation).

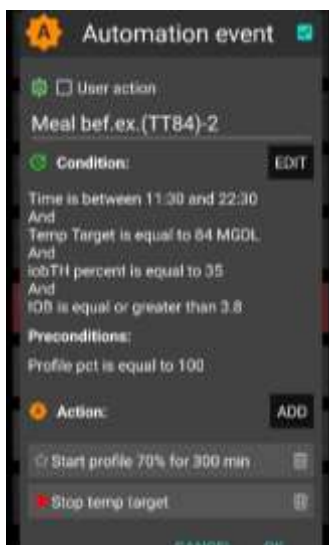
To keep the AAPS home screen as clean (and relevant) as can be, that button will show only in the time slot as specified under Conditions.

\*) It will be reduced to something realistic. Only for development and testing purposes it had to extend into the night.

## Automation 2

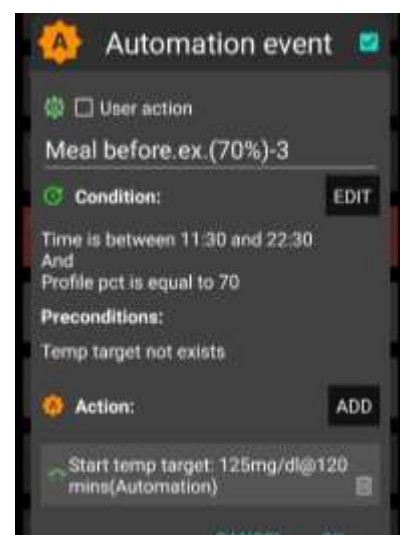
When (my in Automation 1, for exercise following the meal, to 35 % reduced iobTH that translates for me into)  $iob > 3.8$  is exceeded, I want two things:

- (1) The loop shall now automatically run milder, on my reduced exercise %profile (70%)(after the meal rise had been managed based on 100% profile, boosted by bgAccel\_ISF driven full loop aggressiveness).
- (2) I like also to set a exercise TT. This, however, is not possible. I first have to force an end to my EatingSoonTT of 84:



## Automation 3

Now, that Automation 2 ended my TT of 84, Automation 3 can (max 5 minutes later) set the desired exercise TT=125 (which implies the exercise mode as in detail explained before).





129

130 Note that Automations 2 and 3 are fully automatic, no User Action involved.

131

132 Should during my exercise a need arise to modulate the loop aggressiveness (iobTH,  
133 effective ISF) I could do this within 1-2 seconds also right from the AAPS home screen („FCL  
134 cockpit“) by setting a higher or lower temp. %profile, and/or by setting a higher or lower temp.  
135 exerciseTT.

136 To make the loop act a bit more aggressive, switching the exercise button OFF (from  
137 yellow to grey) could also be considered

138

139 [Finding User action - Automations to build your FCL cockpit](#)

140 **If you want to develop your DIY User Interface make sure you define suitable settings**  
141 **that reflect your personal insulin sensitivity and data patterns.**

142 As mentioned in other places, Automations can be tricky as to whether they actually will ever  
143 work, because the loop goes through the exact **sequence of all your active Automations**,  
144 and might be switched into a direction that no longer is compatible with the conditions that  
145 must be a given, for the Automation you think that should kick in.

146 To have a clean AAPS home screen (and also to prevent unnecessary accidental  
147 activation), define reasonable time windows for each of your shelved special routines, or  
148 keep them entirely dormant (de-activated) in the list of all your Automations, and activate  
149 them for the day when you think you might need them.

150

151 [Improved FCL Cockpit](#)

152 [With the \*suggested\* improved cockpit user interface \(section 5.3 and 6.3\), I could have gone](#)  
153 [through the day with just one time un-critical step \(as discussed in section 6.5.2 \).](#)

154 [Should during my exercise a need arise to stop a selected mode, or to change a setting, I](#)  
155 [could do this within 1-2 seconds also right from the AAPS home screen \(„FCL cockpit“\).](#)

156

157

158 [Skip all following pages, unless you like to learn more about Logfile analysis using the](#)  
159 [emulator](#)

## Logfile analysis with the emulator

Skip this last section, unless you like to learn more about using the emulator.

Analysis of my biking day with the emulator required to load the logfiles from my phone into the PC, and to have the files for the emulator downloaded from Github.

- 1) Load an empty vdf file, and access to logfiles (erasing the end with UTZ time, and putting an asterics after date\_ => all of that date get loaded into the mask
- 2) Define the time window of interest, using UTZ (= MEZ summertime minus 2) in the last two lines (right hand side input fields) of the form:

Manage Inputs and Outputs for Emulating AAPS Settings

Your working directory  
C:/Users/Berni/Documents/B\_Pump\_CGM\_Phone/Looping/Looping/autotSF\_UAMcodechanges/T3\_autotSF\_3.0/Sports day biking

Select Inputs    Select Graphics Options    Execute the Analysis    Inspect Results

Your variant definition file  
C:/Users/Berni/Documents/B\_Pump\_CGM\_Phone/Looping/Looping/autotSF\_UAMcodechanges/T3\_autotSF\_3.0/Oct.12\_worst.day/noChange-Berni.vdf    Browse    Edit

Your AAPS logfile(s)  
/Documents/B\_Pump\_CGM\_Phone/Looping/Looping/autotSF\_UAMcodechanges/T3\_autotSF\_3.0/2021\_Analyse\_ofSF3.0\_SepOct/Logfiles\_Sep22-Oct.22/AndroidAPS\_2023-10-04\_\*.ap    Browse    Show matches

example date/time format ... 2019-11-06T12:30:00Z  
2023-10-04T10:00:00Z  
2023-10-04T16:00:00Z

☒ Use start time by entering UTC date/time  
☒ Use final time by entering UTC date/time

- 3) Execute Analysis / Run Emulation yields results as table:

Select Inputs				Select Graphics Options				Execute the Analysis				Inspect Results								
Messages from Emulation												Clear Messages		Run Emulation		Emulation finished				
--SN range--		--lin. fit--		---parabola fit---		---ISF factors---				---ISFs---		insulin Req		---SMB---		---logBase1---				
B	data	avg.	data	rate	data	last-b	next-b	auto	acoe	bg	pp	delta	data	orig	prof	emul	orig	emul	orig	emul
0	10	103.3	20.0	2.3	15	-3	-6	1.0	-0.1	0.96	1	1	1	229.2	61.4	229.2	0	0	0	0
0	15	103.3	25.0	1.7	25	-3.14	-2.97	1.0	1	0.96	1	1	1	95.7	61.4	95.7	0	0	0	0
0	20	103.4	30.0	1.0	15	1.2	3.8	1.0	1	0.96	1	1	1	47	43	47.0	0	0	0	0
0	25	109.4	35.0	2.0	15	2.6	3.8	1.0	1.1	0.96	1	1	1	60.7	43	60.7	0.1	0.1	0	0.97
0	30	109.5	40.0	1.9	25	1.5	1.93	1.0	1.0	1.0	1.04	1	1.06	39.9	43	39.9	0.88	0.88	0.7	0.7
0	35	117	45.0	2.3	15	7.2	11.2	1.0	1.79	1.01	1.16	1	1	24.2	43	24.2	3.02	3.02	2.4	2.4
0	40	123.5	50.0	2.9	15	0.4	-8.1	1.0	0.85	1.02	1	1	1	74.4	43	74.4	0	0	0	0
0	45	121.5	55.0	2.7	20	-2.87	-6.09	1.0	0.45	1.01	1	1	1.07	61.8	43	61.8	0	0	0	0
0	50	114	60.0	1.6	25	-5.89	-9.53	1.0	0.45	1.01	1	1	1	65.3	43	65.3	0	0	0	0
0	55	115.2	65.0	-3.0	30	-3.57	-4.28	1.0	0.98	1.01	1	1	1	43.4	43	43.4	0	0	0	0
0	60	114.7	70.0	-1.5	15	-0.4	1.2	1.0	1.36	1.01	1	1	1.04	32.4	41	32.4	0	0	0	0
0	65	115.2	75.0	-1.7	20	2.77	5.49	1.0	1.26	1.01	1.05	1	1.06	32.4	41	32.4	0	0	0	0
0	70	115.2	80.0	2.5	25	3.39	5.35	1.0	1	1.01	1.02	1	1.05	36.1	41	36.1	0	0	0	0
0	75	119.3	85.0	3.1	15	3.6	4.1	1.0	1.06	1.01	1.1	1	1.04	37.3	41	37.3	0.29	0.29	0.2	1.13
0	80	130	90.0	6.0	15	7.4	10.8	1.0	1.65	1.02	1.14	1	1	24.9	41	24.9	2.55	2.55	1.8	5.13
0	85	141	100.0	3.1	20	10.7	13.84	1.0	1.65	1.05	1.22	1	1	22.6	41	22.6	4.16	4.16	1.8	2.2
0	90	141	105.0	2.1	20	10.7	13.84	1.0	1.67	1.05	1.22	1	1	22.6	41	22.6	4.16	4.16	1.8	2.2
0	95	141	110.0	11.7	20	10.7	13.84	1.0	1.65	1.05	1.22	1	1	24.3	41	24.3	0	0	0	0
0	100	149	115.0	8.1	20.1	10.09	11.39	1.0	1.28	1.04	1.16	1	1	32	41	32.0	0.45	0.45	0	0.4
0	105	149	120.0	7.1	15	1.05	-4.38	1.0	0.38	1.04	1	1	1	102.2	41	102.2	0	0	0	0
0	110	148.7	125.0	5.4	20	-2.41	-6.96	1.0	0.5	1.04	1	1	1.13	72.1	41	72.1	0	0	0	0
0	115	144.6	130.0	-1.5	14.9	-2	-3.01	1.0	0.85	1.04	1	1	1.26	37	41	37.0	0	0	0	0
0	120	145.7	135.0	-3.5	15	-4.6	-6.6	1.0	0.77	1.04	1	1	1.32	37.3	41	37.3	0	0	0	0
0	125	138.2	140.0	-5.0	24.9	-3.83	-9	1.0	0.85	1.04	1	1	1	47.7	41	47.7	0	0	0	0
0	130	136.7	145.0	-4.4	15	-3.4	-2.4	1.0	1.22	1.03	1	1	1.07	32.9	40	32.9	0	0	0	0
0	135	136.7	150.0	-3.0	15	-3.4	-2.4	1.0	0.88	1.0	1	1	1	33.1	40	33.1	0	0	0	0
0	140	134	155.0	1.0	15	0.6	3.6	1.0	1.45	0.99	1	1	1	45.1	50	45.1	0	0	0	0

In line 6 (12:34 CET) a 2.4 U big SMB is given, driven by bgAcel\_ISF factor of 1.78

Highlighted is 13:29 CET (for some reason there is duplicated line for it). Here, a big insulinReq of 6,5 U is cut down to a SMB of only 1.8 U..

- 4) ... to see how our settings, TT and and sports button worked here, and what iobTH applied, we must look into the logs available from: ((alternatively, the SMB tab from exactly those 5 minutes would show, too))



177 Instead of Execute Analysis, press Inspect results...

Manage Inputs and Outputs for Emulating AAPS Settings

Your working directory  
C:/Users/Bernd/Documents/B\_Pump, CGM, Phone, Looping/Looping/autofSF\_UAMcodechanges/13\_autoSF\_3.0/Sports day biking

Select Inputs   Select Graphics Options   Execute the Analysis   **Inspect Results**

Your variant definition file  
C:/Users/Bernd/Documents/B\_Pump, CGM, Phone, Looping/Looping/autofSF\_UAMcodechanges/13\_autoSF\_3.0/Oct.12\_worst.day/noChange-Bernd.vdf   **Browse**   **Edit**

Your AAPS logfile(s)  
/Documents/B\_Pump, CGM, Phone, Looping/Looping/autofSF\_UAMcodechanges/13\_autoSF\_3.0/2023\_Analyse\_a1SF3.0\_SepOct/Logfiles\_Sep22-Oct.22/AndroidAPS\_2023-10-04\_\*.ap   **Browse**   **Show matches**

example date/time format ...   2019-11-06T18:30:00Z  
2023-10-04T10:00:00Z  
2023-10-04T16:00:00Z

☒ Use start time by entering UTC date/time  
☒ Use final time by entering UTC date/time

178

Manage Inputs and Outputs for Emulating AAPS Settings

Your working directory  
C:/Users/Bernd/Documents/B\_Pump, CGM, Phone, Looping/Looping/autofSF\_UAMcodechanges/13\_autoSF\_3.0/Sports day biking

Select Inputs   Select Graphics Options   Execute the Analysis   **Inspect Results**

\*.log - Your file showing edits from the variant assignments  
C:/Users/Bernd/Documents/B\_Pump, CGM, Phone, Looping/Looping/autofSF\_UAMcodechanges/13\_autoSF\_3.0/Oct.12\_worst.day/2023-10-04T10-00-00Z\_noChange-Bernd.log   **Browse**   **Show**

\*.csv - Your table comparing key values of original vs emulation  
C:/Users/Bernd/Documents/B\_Pump, CGM, Phone, Looping/Looping/autofSF\_UAMcodechanges/13\_autoSF\_3.0/Oct.12\_worst.day/2023-10-04T10-00-00Z\_noChange-Bernd.csv   **Browse**   **Show**

\*.delta - Your table comparing bg deltas of original vs emulation  
C:/Users/Bernd/Documents/B\_Pump, CGM, Phone, Looping/Looping/autofSF\_UAMcodechanges/13\_autoSF\_3.0/Oct.12\_worst.day/2023-10-04T10-00-00Z\_noChange-Bernd.delta   **Browse**   **Show**

\*.orig.txt - Your short log of original analysis  
C:/Users/Bernd/Documents/B\_Pump, CGM, Phone, Looping/Looping/autofSF\_UAMcodechanges/13\_autoSF\_3.0/Oct.12\_worst.day/2023-10-04T10-00-00Z\_orig.txt   **Browse**   **Show**

\*.txt - Your short log of emulated analysis  
C:/Users/Bernd/Documents/B\_Pump, CGM, Phone, Looping/Looping/autofSF\_UAMcodechanges/13\_autoSF\_3.0/Oct.12\_worst.day/2023-10-04T10-00-00Z\_noChange-Bernd.txt   **Browse**   **Show**

\*.pdf etc. - Your graphic file comparing key values of original vs emulation  
C:/Users/Bernd/Documents/B\_Pump, CGM, Phone, Looping/Looping/autofSF\_UAMcodechanges/13\_autoSF\_3.0/Oct.12\_worst.day/2023-10-04T10-00-00Z\_noChange-Bernd.pdf   **Browse**   **Show**

179

180 If you press the 4th option you get the logs which include basically all SMB tab info in an  
181 exhaustively long list.

C:/Users/Bernd/Documents/B\_Pump, CGM, Phone, Looping/Looping/autofSF\_UAMcodechanges/13\_autoSF\_3.0/Oct.12\_worst.day/2023-10-04T10-00-00Z\_orig.txt - Notepad++

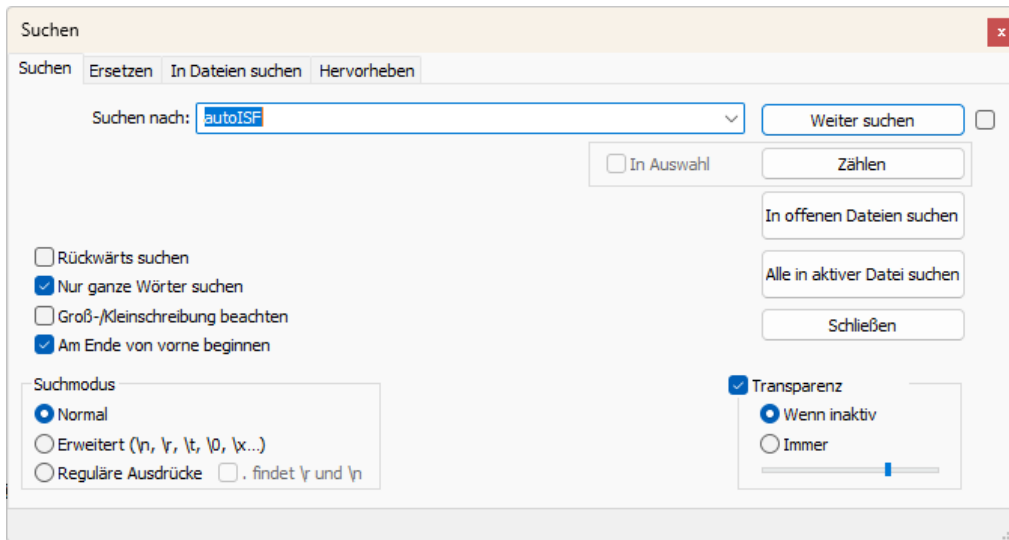
Datei Bearbeiten Suchen Ansicht Kodierung Sprachen Einstellungen Werkzeuge Makro Ausführen Erweiterungen Fenster ?

```
16 ===== loop in row 13418 ===== of logfile C:/Users/Bernd/Documents/B_Pump, CGM, -- Phone,
17 Looping/Looping/autofSF_UAMcodechanges/13_autoSF_3.0/2023_Analyse_a1SF3.0_SepOct/Logfiles_Sep22-Oct.22/AndroidAPS_2
18 created at= 2023-10-04T10:04:16.210Z
19 ----- Script Debug -----
20 Sensitivity ratio set to 0.67 based on temp target of 125:
21 Adjusting basal from 0.35 to 0.26130000000000003;
22 ISF from 61.4 to 91.7
23 CR: 10.714285714285715
24 -----
25 start autofSF 3.0
26 -----
27 SMB disabled; TempTarget 125 is odd number
28 Loop at minimum power:
29 effective meal add on is 0
30 acce_ISF adaptation is -0.1
31 bg_ISF adaptation is 0.96
32 weakest autofSF factor -0.1 limited by autofSF_min 0.4
33 final ISF factor is 0.27 including exercise mode impact
34 -----
35 end autofSF
36 -----
37 currentTemp: 0.27 lastTempAge: 0 m tempModulus: 25 m
38 profile.sens: 61.42857142857143 sens: 229.2 CSF: 21.35
39 Carb Impact: -8.3 mg/dL per 5m; CI Duration: 0 hours; remaining CI (-2h peak): 0 mg/dL per 5m
40 UAM Impact: -8.3 mg/dL per 5m; UAM Duration: 0 hours
41 minPredBG: 130 minIOBPredBG: 130 minTGuardBG: 107
42 minUAMPredBG: 113
43 avgPredBG: 154 COB: 0 / 0
44 BG projected to remain above 125 for 0 minutes
45 BG projected to remain above 83 for 240 minutes
46 naive_eventualBG: 128 bgUndershoot: -45 zeroTempDuration: 240 zeroTempEffect: 358 carbaReq: -19
47 ----- Reason -----
48 COB: 0, Dev: -25, BGI: 5, ISF: 229, CR: 10.71, Target: 125, minPredBG 130, minGuardBG 97, IOBPredBG 154; Eventual BG 1
49 AAPS scan from AAPS Logfile for SMB comparison created on Fri, 27-Oct-2023 18:09:40 +0200
50 FILE=C:/Users/Bernd/Documents/B_Pump, CGM, -- Phone, Looping/Looping/autofSF_UAMcodechanges/13_autoSF_3.0/2023_Analyse
```

182

The blue highlighted line shows we are at 10:04 UTZ (12:04 CET) . We can see how sensitivity ratio and also basal were lowered due to sports setting with a 125 mg/dl TT, or 129 used a bit later, which also disabled SMBs.

By using the search function you can jump, in that long list, to all places that e.g. have „autoISF“ in it, or „script debug“, or „SMB disabled“ (if you want to analyze when that happened...)



5) Now lets look at 11:29 UTZ (13:29 CET) which was when the first relevant size SMB was issued:

In the following, I copy and shorten texts from the log table as above, for some time points of high interest:

11:29 UTZ (13:29 CET), when SMB was delivered:

loop in row 14007 .....created at= 2023-10-04T11:29:11.005Z

----- Script Debug -----

Sensitivity ratio set to 1.1 based on temp target of 74;

Adjusting basal from 0.55 to 0.6050000000000001;

ISF from 41 to 37.3

CR: 7.5

So, we see the meal TT of 74 (set by one of my Automations for cases in which I did not bother to set an EatingSoonTT) temp. overrides the exercise target and sharpens the applicable ISF: ((It also elevates basal ; note that TBRs can run several 100% of basal))

-----

start autoISF 3.0

207 -----  
 208 SMB enabled; TempTarget 74 is even number  
 209 Loop at full power  
 210 acce\_ISF adaptation is 1.81  
 211 bg\_ISF adaptation is 1.05  
 212 pp\_ISF adaptation is 1.22  
 213 dura\_ISF by-passed; bg is only 0m at level 141  
 214 final ISF factor is 1.81  
 215 -----  
 216 end autoISF  
 217 -----  
 218 profile.sens: 41 sens: 22.6 CSF: 3.01  
 219 minPredBG: 220 minIOBPredBG: 135 minZTGuardBG: 94 minUAMPredBG: 231  
 220 avgPredBG: 220 COB: 0 / 0  
 221 BG projected to remain above 74 for 240 minutes  
 222 IOB 2.033  
 223 Full loop capped SMB at 1.87 to not exceed 130 % of effective iobTH  
 224 Here we see that our, for the exercise day significantly lowered, iobTH not only blocked  
 225 SMBs above that lower threshold. Also the 30% "the last" SMB is max. allowed to go beyond  
 226 the valid iobTH now amounts to significantly less.  
 227 So, while, as intended for start of a high carb meal, my loop is at full power (line 209), the last  
 228 SMB (line 223) got capped to way below insulinReq (line 231).  
 229 ... maxBolus: 3.2  
 230 ----- Reason -----  
 231 Eventual BG 304 >= 74, insulinReq 6.46. Microbolusing 1.8U. adj. req. rate: 13.53 to  
 232 maxSafeBasal: 5.5, temp 2.75 < 5.5U/hr.  
 233  
 234 6) A look at the cake after 14:20 (16:20 CET):™  
 235 From 14:09 UTZ (16:09 CET) on, I discontinued the sports TT and the loop reverted to 90  
 236 mg/dl profile target.

237 As desired for starting to eat cake, this made SMBs possible, and the only reduction of FCL  
238 aggressiveness was the 70% due to temp. profile set for this sports day.

239 However, 14:14 - .19 - .24 and :29 there was no insulinRequired yet (while ISF factor  
240 gradually ramped up from 0.52 to 1,09 (line 1735, 1772, 1807) .

241 At 14:34 UTZ (16:34 CET) a first cake related SMB of 0.5 U was issued based on 0,66 U  
242 ins.Requ (line 1897), and based on a bgAccel\_ISF factor of 1,54 (and final ISF factor of  
243 1,52).

244

245 As there is a **>10 mg/d delta** (glucose rise), **my Automation** kicks in and sets for the next  
246 loop decisions (for 26 minutes is as my Automation defines it) a **TT=74** mg/dl which makes  
247 the loop more aggressive from 14:37 on:

248 created at= 2023-10-04T14:37:15.371Z

249 ----- Script Debug -----

250 Sensitivity ratio set to 1.1 based on temp target of 74;

251 Adjusting basal from 0.48 to 0.528;

252 ISF from 39 to 35.5

253 CR: 6.6

254 -----

255 start autoISF 3.0

256 -----

257 SMB enabled; TempTarget 74 is even number

258 Loop at full power

259 acce\_ISF adaptation is 1.64

260 bg\_ISF adaptation is 1

261 pp\_ISF adaptation is 1.08

262 dura\_ISF adaptation is 1.11 because ISF 35.5 did not do it for 30 m

263 final ISF factor is 1.64

264 -----

265 end autoISF

266 -----

267 profile.sens: 39 sens: 23.8  
268 avgPredBG: 94 , BG projected to remain above 74 for 240 minutes  
269 IOB 0.438 Eventual BG 100 >= 74, insulinReq 0.84. Microbolusing 0.6U.  
270  
271 created at= 2023-10-04T14:39:16.537Z  
272 ----- Script Debug -----  
273 Sensitivity ratio set to 1.1 based on temp target of 74;  
274 Adjusting basal from 0.48 to 0.528;  
275 ISF from 39 to 35.5  
276 CR: 6.6  
277 -----  
278 start autoISF 3.0  
279 -----  
280 SMB enabled; TempTarget 74 is even number  
281 Loop at full power  
282 effective meal add on is 0.04  
283 acce\_ISF adaptation is 1.25  
284 bg\_ISF adaptation is 1  
285 pp\_ISF adaptation is 1.06  
286 dura\_ISF by-passed; bg is only 5m at level 97.5  
287 final ISF factor is 1.25  
288 -----  
289 end autoISF  
290 -----  
291 profile.sens: 39 sens: 31.2  
292 avgPredBG: 78 BG projected to remain above 74 for 240 minutes  
293 IOB 1.114  
294 Eventual BG 84 >= 74, insulinReq 0.13; setting 30m low temp of 0.04U/h.  
295 Microbolusing 0.1U.