# Glossary

V. 3.8

For an introduction into the topic of **Artificial Pancreas Systems** ("Looping"), see**:**

- https://github.com/danamlewis/artificialpancreasbook/
- and https://androidaps.readthedocs.io/en/latest/Resources/clinician-guide-to-AndroidAPS.html#for-clinicians-a-general-introduction-and-guide-to-aaps.
- Overview over all DIY loops https://www.diabettech.com/user-resources/hcp-loop-guide/

For a resource on key topics like ISF, meal management etc. see the pdf collection in the HCL branch of: https://github.com/bernie4375/HCL-Meal-Mgt.-ISF-and-IC-settings

The parallel default branch with a "**FCL-e-book**" https://github.com/bernie4375/FCL-potential-autoISF-research- is for advanced users.

| Term | Description | see also | more details @ |
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| **AAPS** | AAPS is the name of an **Open Source** (aka " DIY") looping app: On **A**ndroid phones, Bluetooth connected with an insulin pump and a **CGM**, it provides an **Artificial Pancreas System**<br>Broadest choice of pumps and CGMs of any looping option | Android Studio:<br>iAPS<br>iOS Loop | https://androidaps.readthedocs.io/en/latest/introduction.html#what-is-android-aps-aaps |
| **AAPS Client** | AAPS can be monitored and controlled remotely via the AAPSClient app and optionally via the associated Wear app running on Android Wear watches | | https://androidaps.readthedocs.io/en/latest/GettingStarted/FAQ.html#configuring-and-using-the-aapsclient-remote-app |
| **acceleration** | mathematical analysis of the **bg** development can reveal earliest signs of a bg rise (highly relevant in -> **FCL** w/**autoISF**). Growing **bg delta**s can show acceleration too, with a ~ 10-20 minutes delay.<br>A de-celerating rise indicates a bg peak will soon be reached. | | https://github.com/ga-zelle/autoISF/blob/A3.2.0.2_ai3.0/autoISF3.0_Quick_Guide.pdf<br>FCL-e-book, section 4.2 |
| **Activity Monitor** | feature of some loop systems that allow adaptation of loop **aggressiveness** with ~ past hour data from the phone's (or watch') motion monitor (evtl also heart rate). | aggressiveness | FCL-e-book, section 5.1.5 |
| **aggressiveness of the loop** | more aggressive loop settings will deliver more insulin, often via a lowered temporary **ISF** being applied to a needed correction, or also via a temp. lowered **bg target**. A more aggressive loop helps fight temp. insulin **resistance** (e.g. after fatty meals).<br>Conversely, e.g. in an exercise context, higher ISF and higher temp.glucose target | resistance sensitivity | FCL-e-book, section 5 |

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| | help deal with increased insulin **sensitivity.** | | |
| **AIMI** | dev variant of AAPS involving simple **Meal Announcement (MA)** that might be stretched into a FCL | | FCL-e-book 13.3.2; https://discord.gg/tPDQzS3Bq3 |
| **algorithm** | the algorithm is a set of calculations and plausibility/safety checks the loop goes through every 5 minutes (upon receipt of a new **CGM** value), to define what to do, notably in terms of more insulin delivery for **control of bg** (to bring it to target) | control;<br><br>oref;<br><br>insulin kinetics | https://openaps.readthedocs.io/en/latest/docs/While%20You%20Wait%20For%20Gear/Understand-determine-basal.html#understanding-the-basic-logic-written-version |
| **AMA** | advanced meal assist - algorithm to handle carbs via %**TBR** (without SMBs) | SMB | Wiki - AMA |
| **Android Studio** | (free) developer software needed to complete and maintain your personal copy of **AAPS**<br><br>(for **iAPS** and iOS Loop: see **Xcode**) | Github | https://androidaps.readthedocs.io/en/latest/Installing-AndroidAPS/troubleshooting_androidstudio.html#troubleshooting-android-studio |
| **Anubis** | DIY re-engineered transmitter for Dexcom **G6 CGM**; lasts unlimited (evtl. battery change); will not shut down sensor at 10.0 days (as factory transmitters do).<br>For more info: „Followers of Anubis“ Facebook group | G6<br><br>G6 x 2 | https://docs.google.com/forms/d/e/1FAIpQLSdGtAmwqkBUaMVbBPENF_eRBSz7ZMcCz-3CjLxwc4TC6_RH5w/viewform |
| **apk** | software installation file (Android application package) | | Wiki - Building APK |
| **APS** | **A**rtificial **P**ancreas **S**ystem. Semi-automatic insulin delivery system that, coupled with a **CGM**, can regulate bg to target. Besides DIY systems (OpenAPS, AAPS, iAPS and iOS Loop) that pioneered this area, there is an increasing number of commercial systems now available | AAPS;<br>iAPS;<br>iOS Loop<br><br>CGM | https://iaps.readthedocs.io/en/latest/resources/alternative.html#comparison-table-of-automated-insulin-delivery-systems ;<br><br>https://github.com/danamlewis/artificialpancreasbook/ |
| **Artificial Pancreas System (APS)** | a system which works to automatically keep blood sugar levels within healthy limits: by detecting **glucose levels**, using these values to do **calculations**, and then delivering the (predicted) right amount of **insulin** to the body. It repeats the calculation, every few minutes, 24/7. | | https://androidaps.readthedocs.io/en/latest/introduction.html#what-is-an-artificial-pancreas-system |
| **autoISF** | **dev** variant of 1. **AAPS**/ (or of 2. **iAPS**) working with **oref**, SMB+**UAM**, with very sharp adaptation of **ISF** to glucose curve (**acceleration**, **delta**, level, stuck-at-high). Ideal for **FCL** but difficult to set up | FCL | 1. https://github.com/T-o-b-i-a-s/AndroidAPS/<br><br>2.https://github.com/mountrcg/iAPS |

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| | ("tune").<br>Useful also in HCL (tuning different) | | FCL-e-book |
| **Automation**<br><br>(Feature integrated in AAPS; other loops may need 3rd party software; or "middleware") | 1. analyze patterns in YOUR data, (at times, geo-locations, or bg and iob patterns that point to a problem …) where you want your loop act differently: carve out Conditions that describe the situations<br>2. Define Actions (loop settings for different aggressiveness) for x minutes<br><br>Specifically in **AAPS**: **User Action Automations** enable -> **DIY cockpi**t | Automated aggressive-ness modulation<br><br>DIY cockpit | https://androidaps.readthedocs.io/en/latest/Usage/Automation.html#automation<br><br>https://androidaps.readthedocs.io/en/latest/Usage/automationwithapp.html#automation-with-third-party-android-automate-app |
| **Autosens** | calculation of **sensitivity** to insulin as a result of exercise, hormones etc. | iob delta | DIABETTECH - Autosens |
| **Autotune** | Autotune can be used to get suggestions how to tune **profile basal**; it gives also one 24h average **IC** and **ISF** suggestion.<br><br>Controversial; not for use with **dynamicISF**, **autoISF**: | | https://androidaps.readthedocs.io/en/latest/Usage/autotune.html#how-to-use-autotune-plugin-dev-only<br><br>https://iaps.readthedocs.io/en/main/settings/configuration/autotune.html#autotune |
| **basal rate** | the basal rate defined in the **profile** (that you give to your loop to work with) is the amount of hourly insulin to maintain BG at a stable level, in absence of -> **disturbances** | IC / ISF<br><br>profile<br><br>disturb-ance | |
| **bg** | blood glucose: the tissue glucose that all CGMs measure reflects the blood glucose, with a couple of minutes of delay. (This, plus the minutes of spacing between **CGM** values, adds to the "sluggishness" of getting our bg regulated by the loop). | control (sluggish-ness)<br><br>Libre 3 | |
| **bg_delta** | see **delta** | | |
| **bg source** | the blood glucose source is the source where your bg values come from. They come from a **CGM** system which you wear through some kind of integration software like **BYODA, xDrip+** | CGM / FGM | Wiki - BG source |
| **BMI** | body mass index | | |
| **Boost** | dev variant of AAPS involving simple **Meal Announcement (MA)** that can be stretched into a FCL | | Fcl-e-book 13.3.1;<br>https://discord.gg/nYC4T9PgCR |
| **BYODA** | Build Your Own Dexcom App - a special way to generate your own Dexcom App | xDrip+ | Dexcom G6 |

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| | for reading out the transmitters and pass **smoothened bg** values on for looping (- e.g. direct into AAPS, or via **xDrip+**, while retaining the option to use Clarity® as your doc office may want you to use) | | https://docs.google.com/forms/d/e/1FAIpQLScD76G0Y-BlL4tZljaFkjlwuqhT83QlFM5v6ZEfO7gCU98iJQ/viewform |
| **Calculator** | **HCL** systems (and pump therapy in general) come with bolus calculators for suggesting bolus size for meals.<br>Not important for advanced loopers (SMB+**UAM**) | | |
| **calibration** (of CGM) | if your symptoms disagree with what the CGM shows: test with your blood glucose meter; calibration is one (but not always the best) option then | CGM | https://navid200.github.io/xDrip/docs/Calibration.html |
| **carb absorption** | 1) foods with slower absorption are easier to manage with insulin<br><br>2) 30 g/h seems a max (heavy eaters: do not bolus for more g than digested while your bolus goes strong!)<br><br>3) for **oref** systems the **min5mCarbImpact** defines the lower border of plausibility.<br><br>4) oref loops calculate delta **cob** from bg **delta** and **iob** delta (using ISF and IC)<br><br>5) note that drugs,e..g.Ozempic® or co-morbidities, e.g.gastroparesis have pro-found effects (inform yourself about implications re. carb abs. corridor). | cob; iob<br><br>iob delta;<br><br>eCarbs;<br><br>FPU;<br><br>insulin kinetics | https://androidaps.readthedocs.io/en/latest/Usage/FullClosedLoop.html#meal-related-limitations<br><br>https://github.com/danamlewis/artificialpancreasbook/blob/master/8.-tips-and-tricks-for-real-life-with-an-aps.md#heres-the-detailed-explanation-of-what-we-learned |
| **carb ratio** | we use the term **IC** factor for this | IC | |
| **CGM** | continuous glucose monitor (Dexcom, Libre, and other systems) | bg source<br><br>G7, 6…; Libre 3 | https://www.diabettech.com/cgm/six-of-the-best-digging-further-into-the-statistics/ |
| **circadian** (sensitivity, basal rate, ISF…) | basal need, **IC** and **ISF** vary over 24 hours according to a „circadian“ pattern of varying sensitivity to insulin.<br>Improper profile settings will “use up and waste” some of the loop system’s capab-ility to correct for disturbances. | disturbanc e | Section 5. in “ISF determ…pdf” : https://github.com/bernie4375/HCL-Meal-Mgt.-ISF-and-IC-settings |
| **Closed Loop** | closed-loop systems make automatic adjustments to basal delivery (**TBR**), without needing user-approval, based on an **algorithm**;<br>some also can automatically bolus (**SMB**) | Open Loop | https://androidaps.readthedocs.io/en/latest/Resources/clinician-guide-to-AndroidAPS.html#for-clinicians-a-general-introduction-and-guide-to-aaps ; |

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| | | | Wiki closed loop |
| **clinician support of DIY systems** | the references given demonstrate increasing consensus to support DIY solutions as suitable for their patients | | https://androidaps.readthedocs.io/en/latest/introduction.html#support-for-diy-looping-by-other-clinicians |
| **cob** (g) | carbs on board is the amount of carbohydrates currently available for digestion ("that still needs **iob**"). | carb absorption;<br><br>iob | https://androidaps.readthedocs.io/en/latest/Usage/COB-calculation.html#how-does-aaps-calculate-the-cob-value |
| **connectivity** | numerous options for Bluetooth or WLAN connected devices. Additional open-source software and platforms (which are not shown in reference, e.g. Automate!, or Android Auto) can also be integrated. | | https://androidaps.readthedocs.io/en/latest/introduction.html#what-is-the-connectivity-of-the-aaps-system |
| **control of bg** (sluggishness) | balancing **carb absorption** with **insulin activity** is a very difficult „sluggish" control problem - very much like boating. See slides 11-19 in "Meal Mgt….pdf". | carb absorption;<br><br>insulin kinetics;<br><br>bg | "Meal Mgt….pdf" in: https://github.com/bernie4375/HCL-Meal-Mgt.-ISF-and-IC-settings |
| **delta** | delta bg =d5=in past 5 minutes: important anchor point for loop calculations (see e.g.. in SMB tab of AAPS) .<br>short avg delta= d15=avg. of last 3 deltas<br>long avg.delta=d40= avg. of last 8 deltas<br>All 3 delta categories show in the top section of the AAPS main screen | iob delta | |
| **dev** | def version (of **Master** release) or dev variant (different, often extra, features to Master) are software undergoing development or in pre-Master-release testing | autoISF;<br>Boost;<br>and many others | |
| **Dexcom** | **CGM**, see **G7**, **G6** | | |
| **DIA** (hours) | duration of insulin action | insulin kinetics | Wiki insulin types<br>DIABETTECH - DIA |
| **disturbance** | Factors like meals and exercise (and ~40 others) disturb the smooth operation that would be possible with a well set basal profile. The set **ISF**, or a temp. activated **exercise mode** may enable the loop to automatically manage the disturbance. In other cases, a **%profile switch** or other measures may be needed. | ISF;<br><br>exercise mode;<br><br>%profile switch | https://diatribe.org/poster-now-available-42-factors-affect-blood-glucose<br><br>FCL-e-book, section 5.2 |
| **DIY cockpit** | term used for * having all buttons to "tweak" loop **aggressiveness** on the main screen of the closed loop phone * using tools like "**user action Automation**s" in | | FCL-e-book, section 5.2.2 |

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| | **AAPS** to construct extra buttons for this purpose<br>These can be programmed to show only in pre-defined times, or geo-locations … | | |
| **Dual Hormone Loop** | "Double closed loop" featuring insulin AND glucagon (in development): the glucagon component not only helps stay out of hypos. It enables a more aggressive treatment for preventing, or reducing, high glucose values, as well | | FCL-e-book 13.6 |
| **dynamic carb absorption** | every 5 minutes, **AAPS** and **iAPS** figure out carb absorption from **bg delta**, **insulin activity** consumed, and other data => looping without carb inputs possible | UAM | |
| **dynamic carb ratio** | automatic adaptation of **IC** to bg level and to past day(s) TDD<br>(not useful in advanced oref looping) | iAPS | |
| **dynamicISF** | automatic adaptation of **ISF** to bg level and to past day(s) TDD; tuneable. Note: Autosens min/max defines how far from profileISF dynISF is allowed to go<br>Caution: Can make life easier but can be inferior to using a well tuned **profile ISF** + being proactive with manual **%profile switch**es | sigmoid | https://androidaps.readthedocs.io/en/latest/Usage/DynamicISF.html#dynamicisf-dynisf |
| **dynamic iobTH** | **iob threshold** above which no more **SMB**s are given varies with the set exercise target (feature of **exercise mode** in **autoISF**) | iobTH<br><br>exercise | see FCL-e-book section 6.1.3 |
| **dynamic bg target** | your loop probably allows you to generally select "**sensitivity** raises bg target" and "**resistance** lowers bg target".<br>Caution: Can lead to **rollercoaster**s, especially if your carb settings and daily inputs are not spot-on (=> skewed **Autosens**!) | | |
| **EatingSoon TT** (mg/dl) or (mmol/L) | Concept going back to looping pioneer Dana Lewis: to set a very low temp. bg target ~ 1 h before meals, so the loop gets a low bg starting point, and also some pos. iob at meal start | pre-bolus | https://github.com/danamlewis/artificialpancreasbook/blob/master/8.-tips-and-tricks-for-real-life-with-an-aps.md#how-to-do-eating-soon-mode |
| **EatingNow** | dev variant of AAPS involving simple **Meal Announcement (MA)** that might be stretched into a FCL | | FCL-e-book 13.3.3; https://discord.gg/XqhnPRChEP |

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| **eCarbs** | "extended carbs" - carbs split up over several hours (i.e. lot of fat/protein)<br><br>**extended bolus**es you might know from regular pump therapy do not make much sense when looping | FPU<br><br>SMB | https://androidaps.readthedocs.io/en/latest/Usage/Extended-Carbs.html#what-are-ecarbs-and-when-are-they-useful<br><br>eCarbs use case |
| **Emulator** | program to analyze **AAPS logfiles**, including what-if analysis<br>Note: iAPS has some on-bord analytic capabilities | log files | https://github.com/autoisf/what-if |
| **exercise mode** | a loop mode which limits how high **iob** will/can go (any combination of: raising glucose target, lowering **profile basal**, elevating **ISF**, limiting iob) | TT<br><br>%profile switch;<br><br>dynamic iobTH | https://androidaps.readthedocs.io/en/latest/Usage/making-sport-with-AAPS.html#cycling<br><br>FCL-e-book, section 6 |
| **extended bolus** | frequently desired by looping beginners "to fight high bg", this contradicts the very idea of looping: the algo must receive the inputs to manage bg (tuning). Boli (also the initial meal bolus in **HCL**) disturb the workings of the loop (that shuts off for a while via **zero-temping**) | eCarbs | https://androidaps.readthedocs.io/en/latest/Usage/Extended-Carbs.html#extended-bolus-and-why-they-won-t-work-in-closed-loop-environment |
| **FCL-e-book** | Series of pdfs about **FCL**, with case studies (**autoISF** focused, but all other methods are presented and referenced) | FCL | https://github.com/bernie4375/FCL-potential-autoISF-research- |
| **FPU** (g) | Fat-Protein-Units, converted into g carb equivalent;<br><br>rather than worrying too much about conversion factors for FPUs (2nd link; controversy see slide 30 ->) …<br><br>… oref loopers should rather see to it that their loop can deal well with temporary (!) insulin resistance from fatty acid receptor blockages (3rd link) | eCarbs | https://iaps.readthedocs.io/en/latest/settings/services/fatprotein.html#fat-and-protein-conversion ;<br><br>slide 30 in: "Meal Mgt..pdf" in:https://github.com/bernie4375/HCL-Meal-Mgt.-ISF-and-IC-setting<br><br>https://androidaps.readthedocs.io/en/latest/Usage/FullClosedLoop.html#stagnation-at-high-bg-values |
| **FCL: Full Closed Loop** | Mode of closed looping without the user giving any boli, and without carb inputs. Depending on lifestyle and **%TIR** expectation, can run fully hands-off, or require a few button pushes at special **disturbances**, like heavier exercise. Setting up (personalized tuning) is difficult! | Hybrid Closed Loop (HCL)<br><br>UAM | https://androidaps.readthedocs.io/en/latest/Usage/FullClosedLoop.html;<br><br>FCL-e-book see: https://github.com/bernie4375/FCL-potential-autoISF-research- |

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| **G7, G6, ONE, G5** | abbreviation for Dexcom sensor/transmitter **CGM** systems | BYODA | Wiki - BG source |
| **G6 x 2** (overlapping) | method to get un-interrupted **CGM** values | Anubis; xDrip Variant | FCL-e-book: Case study 1.5 |
| **git** | git in our context here is the tool to mainly download the **AAPS** sources from **Github** for the build process. It's version-control system for tracking changes in computer files and coordinating work on those files especially for teams.<br>-> necessary for **apk** updates | | Wiki - update APK |
| **GitHub** | web-based hosting service for version control using Git<br>-> storage of source code, and of related documentation for: 1.) AAPS 2.a) iAPS 2.b) iOS Loop<br><br>Note: **dev** variants are on other Github pages, see e.g. @ **autoISF** | 1.Android Studio;<br><br>2.Xcode | 1. GitHub AndroidAPS;<br><br>2.a.Github_build_iAPS.yml<br><br>2.b.https://loopkit.github.io/loopdocs/gh-actions/gh-first-time/ |
| **glucose target** | corrections by the loop aim at that bg value set in the **profile** (for each hour of the day); depending on nature of disturbances, and properly set ISF, that value should be gradually reached over the course of 2-4 hours. | TT | |
| **HCL: Hybrid Closed Loop** | The usual mode of looping, with the user initiating a meal bolus (and making other frequent inputs, notably re. carbs). This is really a compromise owed to slow insulins in-capable of dealing with rapid carb absorption | calculator;<br><br>extended bolus;<br><br>FCL | https://androidaps.readthedocs.io/en/latest/introduction.html#what-does-hybrid-closed-loop-mean |
| **iAPS** | oref loop like AAPS but for i-phone<br>Caution: As of Feb.2024 the docu is very incomplete, while features are constantly being added, bugs removed (and not fully Open Source). Not safe unless you constantly stay informed (disagreement on Discord vs Facebook groups on details!)<br><br>Building requires Apple developer licence ($ 100/year), and Xcode. | Xcode<br><br>AAPS | https://discord.gg/JVXwG7gS<br><br>https://www.facebook.com/groups/1351938092206709<br><br>https://iaps.readthedocs.io/en/latest/; |
| **IC (carb ratio)** (g/U) | factor (g/U) describing how many grams of carb are covered by one unit of insulin | ISF | IC determ……pdf" in: https://github.com/bernie4375/HCL-Meal-Mgt.-ISF-and-IC-settings |
| **individualized tuning** | DIY loops are not self-learning but require "tuning" to find proper individual settings, 1) for Meal Management | Object-ives; | HCL guidance in: https://github.com/bernie4375/HCL-Meal-Mgt.-ISF-and-IC-settings |

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| | **HCL**: **AAPS Objectives**; **meal management**<br>**FCL:** dial in your settings (incl. Automations) so the loop is enabled to mimick your successful HCL Meal Management (notably, similar insulin activity curve, going up a bit later, but very steep….)<br>2) finding individual temporary settings to adapt loop **aggressiveness** for other **disturbances** e.g. exercise<br><br>Note 1: Tuning must follow a certain sequence (to avoid instability from counter-balanced multiple errors). Resist the temptation to just play around on the many "buttons" offered!<br><br>Note 2: Learn not to interfere, make your loop – over time – fit to manage automatically | Meal manage-ment;<br><br>FCL tuning | FCL-e-book in: https://github.com/bernie4375/FCL-potential-autoISF-research-<br><br>other disturbances (than meals, see "42 factors..pdf"@HCL guidance), see e.g. sections 5 and 6 in FCL-e-book: https://github.com/bernie4375/FCL-potential-autoISF-research- |
| **insulin activity** (U/5 min) | part of **iob** that will become active in the upcoming 5 minutes (above profile basal supply => figure can be negative also) | insulin kinetics: blue curve | |
| **insulin kinetics** | **AAPS** insulin tab shows two curves: The pink curve starts at 1.0 (100%) and goes down to 0 (0%) when the **DIA** is over. It shows iob left, at any time. The blue curve shows how the activity goes: Practically nothing (!) for a bunch of minutes, then rapidly going high, and then slowly fading out out over the DIA period (with a maximum at time-to-peak). For its calculations, AAPS adds these blue curves up for all boli, **SMB**s and **TBR**s **profile basal** -> thin yellow "activity"curve you can see in your AAPS glucose screen! | control of bg (slug-gishness) | "Insulin_DIA…pdf" in: https://github.com/bernie4375/HCL-Meal-Mgt.-ISF-and-IC-settings<br><br>"The artificial pancreas…pdf" in: https://github.com/bernie4375/HCL-Meal-Mgt.-ISF-and-IC-settings/blob/FCL-w/autoISF/The%20Artificial%20Pancreas%20and%20Meal%20Control.pdf |
| **insulinRequired** (U) | key parameter in the **oref** loop algo: From how **bg**, **iob** and **cob** resp. **carb deviation** develop (-> **predictions**), need for more insulin is calculated. | delivery rate | |
| **iob** (U) | insulin on board; units of insulin (above basal need) currently available to become (within the remainder of its DIA) active in your body (to deal with un-absorbed carbs, or with other disturbances) | insuilin activity | readthedocs |
| **iob delta** (U) | insulin consumed = (1) delta bg / ISF = used for bg correction (2) the rest of the delta iob, multiplied with IC, is the grams of carbs absorbed. (3) if (2) results in implausible **carb absorption**, then IC and ISF are adapted "to force a plausible fit"; and the | carb abs. 2), 3)<br><br>min5m_carb.impact | |

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| | adapted insulin sensitivity is then reflected in **Autosens** ≠ 100% | | |
| **iobTH** (U) *or* iobTH**%** (% of maxIOB) | iob threshold (set below **maxIOB**); at **iob** > iobTH, the loop will give no more boli (**SMB**) but only **TBR** | Iob; maxIOB; SMB | https://androidaps.readthedocs.io/de/latest/Usage/FullClosedLoop.html#iob-threshold |
| **iOS Loop** | easy DIY loop to set up on i-phone. Algorithm requires precise carb inputs at all meals (no **UAM** or **FCL**)<br><br>Very limited choices of pumps | iAPS | https://loopkit.github.io/loopdocs/<br><br>https://www.loopandlearn.org/starting-loop/ |
| **ISF** (mg/dl)/U or (mmol/L)/U | insulin sensitivity factor = the expected decrease in **bg** as a result of one unit of insulin; most important parameter in **oref** loops | IC | ISF determ…pdf" in: https://github.com/bernie4375/HCL-Meal-Mgt.-ISF-and-IC-settings |
| **LGS** | Low Glucose Suspend<br>**AAPS** will reduce basal if **bg** is dropping. But if bg is rising then it will only increase basal if the **iob** is negative (from a previous LGS), otherwise basal rates will remain the same as your selected profile. You may temporarily experience spikes following treated hypos without the ability to increase basal on the rebound. | objective 6 | |
| **Libre 3** | **CGM** ; also Libre2<br>(alternatives to **Dexcom** CGMs) | CGM<br><br>bg | https://www.diabettech.com/cgm/battle-royale-freestyle-libre-3-and-dexcom-g7-face-off-the-results/; |
| **Libre 3**<br>**1 minute** | First option to run a 1-minute **CGM** - which could bridge a few minutes of "sluggish" delay in looping.<br>This is particularly of interest in no-bolussing **FCL** (see 2nd reference ->). | bg;<br><br>control (sluggish-ness) | https://github.com/Nightsco…/xDrip/releases/tag/2023.02.15<br><br>https://github.com/ga-zelle/autoISF |
| **log files** | record of all **AAPS** actions (useful for troubleshooting and debugging) | | Wiki - log files |
| **Master** | Master is the latest official release, the software that should be used. Note that it is advisable to tune profile in Master **before** adding more features. | dev;<br><br>vanilla | |
| **maxIOB** | safety feature: maximum total **iob** the loop can't go over.<br>(can be limited by set patient type!) | | https://androidaps.readthedocs.io/en/latest/Usage/Open-APS-features.html#maximum-total-iob-openaps-cant-go-over-openaps-max-iob |
| **MDI** | mulitple daily injections: option to manage your t1d with an insulin pen (and **bg** measurements or **CGM**). | | https://androidaps.readthedocs.io/en/latest/introduction.html#how-does-aaps- |

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| | An option you should resort to in case components of your loop system are unreliable (pump, **occlusion**, erratic CGM, instable Bluetooth) | | compare-to-mdi-and-open-looping |
| **Meal Announcement (MA)** | MA is a closed looping mode between **HCL** and **FCL**: In contrast to HCL, no carbs are counted with an attempt to give a suitable meal bolus. But in contrast to FCL, some form of meal announcement must be made, usually by giving a small **pre-bolus**. | | |
| **Meal Management** | Juggling (for every meal!) the differing carb and insulin absorption characteristics, so bg stays in range, is a tough, if at all possible, mission. Big effort should go into **individualized tuning** of the loop system, and into defining bolus strategies | EatingSoonTT;<br><br>pre-bolus | „Meal Mgt.Basics.pdf“ and „IC determ..pdf“in: https://github.com/bernie4375/HCL-Meal-Mgt.-ISF-and-IC-settings |
| **middleware** | custom algorithm add-ons (notably in **iAPS** that does not have the **Automation** feature of **AAPS**) | Automations | Middleware code for iAPS<br><br>https://discord.gg/3JWQRzfyB2 |
| **min_5m_carb impact** | safety feature (oref): default carb decay at times when **dynamic carb absorption** does not reasonably work out based on your bg reactions | iob delta;<br><br>carb absorption | „min5m_CI …xls” in: https://github.com/bernie4375/HCL-Meal-Mgt.-ISF-and-IC-settings<br><br>Wiki - config builder |
| **negative iob** | **iob** is defined as insulin on bord above **(profile) basal** need: If a correction was driven by a too aggressive **ISF**, too much iob might have been given around time of bg peak, and the loop goes into **zero-temping**. Neg.iob can occur (and can self-resolve, too). Too high set *profile* basal can be behind neg.iob. Likewise, if you forget to keep *temp.%*profile reduced after a day of exercise, your basal is *temporary-ly* too high, and neg.iob is likely. | | |
| **Nightscout** | **open source** project to access and report **CGM** and related data. Also used by parents for remote child’s diabetes management | Nightscout Reporter | Nightscout |
| **Nightscout Reporter** | Tool provided by a fellow looper to generate PDF reports from Nightscout web app data e.g. for meetings with your diabetes team. | Nightscout | Nightscout Reporter<br>NS Reporter @ Facebook |
| **NS Client** | part of **AAPS** to connect to your Nightscout site | | Wiki - NS Client |
| **Objectives** | learning program within **AAPS** guiding you step by step from open to closed loop | | Wiki - objectives |

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| **occlusion** | insulin the pump releases is not fully delivered in the body => persistent very high **bg** despite (fake) high **iob** – dangerous, must be avoided! | | „“Occlusion..pdf“ in: https://github.com/bernie4375/HCL-Meal-Mgt.-ISF-and-IC-settings |
| **OpenAPS** | open artificial pancreas system:<br>runs on small computers (i.e. Raspberry Pi)<br>AAPS and iAPS use many of the OpenAPS features | | OpenAPS docs |
| **Open Loop** | system will only suggest adjustments which have to be confirmed manually in the application | Closed Loop | Wiki - config builder |
| **Open Source** | philosophy to openly share product (especially, software) development without profit orientation, and not operating in narrow frameworks like mandated by e.g. regulations on medical products, (Alternatively, the prefix “DIY” is often used) | Github<br><br>clinician support | |
| **oref** | the key algorithm behind OpenAPS, AAPS and iAPS. In SMB+**UAM** setting it enables looping without any carb inputs | dynamic carb absorption ; | Wiki - sensitivity detection |
| **peak time** or **time-to-peak** (minutes) | time to maximum effect of insulin given: shorter is better for looping, but also exposes bad tuning and can be unsafe (hypos!) for looping beginners | insulin kinetics | Wiki - config builder |
| **pre-bolus** | any meal containing rapid carbs will push **bg** high faster than insulin could become strongly active (nearing peak-time) to control this. Hence bolussing a number of minutes before meal start can be a good idea. | Meal Mgt.<br><br>Eating SoonTT | |
| **predictions** | predictions for bg in the future, based on several different calculations;<br>eventualBG<br>uses traditional bolus calculator math.<br><br>IOBpredBGs<br>predicts only an eventual BG value, once all insulin activity takes effect.<br><br>ZTpredBGs<br>what will happen in the “worst likely case,” if observed carb absorption suddenly ceases, and a zero-temp is applied until BG begins rising at/above target.<br><br>COBpredBGs<br>is calculated based on observed deviations since carb entry, assuming that carbs | insulinRequ. | Wiki - prediction lines<br><br>https://openaps.readthedocs.io/en/latest/docs/While%20You%20Wait%20For%20Gear/Understand-determine-basal.html#understanding-the-purple-prediction-lines |

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| | would continue to be digested/absorbed at a configurable minimum rate.<br><br>UAMpredBGs<br>Once deviations have peaked UAM calculations assume that the deviations will continue decreasing at that same rate until they reach zero. If they're decreasing, but too slowly, it assumes they'll decrease linearly to zero over 3 hours<br><br>Note: loops look into predictions, not just on present **bg**, for decisions (see SMB tab in AAPS) | | |
| **profile** | basic treatment settings (basal rate, DIA, IC, ISF, bg target)<br>**AAPS** v3 only supports **local profiles** but Nightscout profiles can be copied (synchronized) to AAPS | | Wiki - profile |
| **profile switch** (% other than 100) | temporary (= assigned with a duration) change of profile used reflecting percentual increase/decrease of insulin sensitivity (e.g. <<100% in an exercise context) | | https://androidaps.readthedocs.io/en/latest/Usage/Profiles.html#profile-switch |
| **remote control** | DIY looping systems come with options for parents to remotely control their young kids' loops, e.g. via secure SMS commands | | https://androidaps.readthedocs.io/en/latest/introduction.html#remote-control |
| **resistance** | above-normal insulin need, e.g. after a fatty meal | FPU | |
| **roller coaster** | term to describe bg curves that go steep down, then up, then down again …<br>often a result of too aggressive **ISF;** **dynamic** settings (ISF, bg target etc) can also increase the tendency towards r.c. | ISF;<br><br>dynamic ISF, bg … | |
| **sensitivity** | below-normal insulin need, e.g. after exercise that makes you temp. more insulin sensitive | exercise | |
| **sensivity detection** | calculation of sensitivity to insulin (based on **deviations** that cannot be "explained" by **carb absorption**) as a result of exercise, hormones etc. | Autosens | DIABETTECH - Autosens |
| **sensor noise** | unstable **CGM** readings leading to "jumping" values | CGM | Wiki - sensor noise |
| **sigmoid** | uses profile ISF and adjusts it "in S-curve shape" with glucose level above target, and **TDD**. | dynamic ISF | https://www.desmos.com/calculator/s9jxdmqhh8 |

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| | Can turn out more aggressive than standard **dynamicISF** if **Autosens** min/max is set wide open => not recommended for **iAPS** beginners | | |
| **SMB** | small bolus given by the loop (advanced feature for faster bg adjustment vs **TBR**) | UAM<br>iobTH | Wiki - SMB<br>Wiki – AMA to SMB |
| **SMB delivery ratio** | defines which % (default 50 or 60%) of the calculated **insulinRequ**. shall be given now vs. waiting 5 more minutes, (and then again same % of what then is open, which includes the portion that had to wait).<br>Caution: Using >75% not recommended as it does not provide room for **CGM** jitter, and reduces flexibility around **SMB**/**TBR** sizing to pull back on insulin delivery when required. | | |
| **SMB range extention** | Bolus sizes the loop can give are severely restricted in **HCL** (usually to max 2x hourly basal). This factor multiplies to magnify "allowed" SMB size in **FCL**. | | |
| **Smoothing** | **CGM** systems deliver raw **bg** values that can be too "jumpy" to use. The loop system and/or intermediate app that captures the transmitter signals offer options to smooth the values into a "realistic" bg curve.<br><br>Smoother is safer (may be needed), but it slows the loop's treatment of bg rises | CGM | https://androidaps.readthedocs.io/en/latest/Usage/Smoothing-Blood-Glucose-Data.html#smoothing-blood-glucose-data<br><br>https://www.diabettech.com/cgm/back-smoothing-or-not-back-smoothing-is-that-the-question/ |
| **TBR**<br>(% of profile basal) | temporary basal rate (given as % of profile basal). Note that *elevated* TBRs regulate **bg** far slower *down* than **SMB**s. | | |
| **TDD** (U) | total daily insulin dose (bolus + basal per day)<br>Note that **occlusions** can produce very noticeable false high TDD values! | dynamic ISF;<br><br>occlusion | |
| **TIR** (%) | % of time **bg** is in a 70 – 180 mg/dl (3.9 – 10 mmol/L) range. | | |
| **Tsunami** | dev variant of AAPS involving simple **Meal Announcement (MA)** that might be stretched into a FCL | | FCL-e-book 13.3.4;<br>https://discord.gg/veRKcgwVUT |
| **TT** (mg/dl) or (mmol/L) | temporary target: temporary increase /decrease of **bg** target (range) e.g. for exercise/for "eating soon" | | Wiki - temp targets |
| **TT** (or target) **even / odd** | some looping softwares offer to set different behaviors (SMBs allowed /blocked), with setting even/odd numbered TT (or also profile target) | SMB | |
| **tuning** | see: **individualized tuning** | | |

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| **UAM** | **U**n-**A**nnounced **M**eals - Detection of significant increase in **bg** levels due to meals (but also adrenaline or other influences), and attempt to adjust this with SMBs. Carb inputs are optional. | dyn.carb absorption<br><br>SMB<br><br>FCL | Wiki - SMB |
| **UTZ, CET** | time zones: The AAPS loop data are generally recorded in UTZ time (universal Greenwich time). Your AAPS screen will show your Smartphone time zone, like central European daylight saving time (CET DST). | logfiles | Wiki DST |
| **vanilla** | term often used for Master version.<br>Advice is not to make use of extras ("bells and whistles") before the basics are tuned in right. Reason: Errors can be balanced with counter-errors => instable system) | Master | |
| **virtual pump** | option to try AAPS functions without a pump connected | Open Loop | |
| **_weight** (-)<br>e.g. bgAccel_ISF_weight | tuning factors used in **autoISF** to adapt **ISF** according to developing glucose curve | autoISF | FCL-e-book, section 4 |
| **wiki** | readthedocs (docus | | |
| **Xcode** | developer software (free, but $ 100/y developer licence) needed to complete and maintain your personal copy of **iAPS** (or **iOS Loop**)<br>For AAPS, see Android Studio | | https://loopkit.github.io/loopdocs/gh-actions/gh-first-time/ |
| **xDrip+** | open source software to read **CGM** transmitters and pass (if desired, smoothened) values on for looping | BYODA | https://navid200.github.io/xDrip/docs/FAQ_page.html<br><br>https://jamorham.github.io/#xdrip-plus<br><br>https://navid200.github.io/xDrip/docs/Installation_page.html |
| **xDrip Variant** | Enables up to 4 parallel xDrip instances on smartphone | G6 x 2 (overlapping) | https://navid200.github.io/xDrip/docs/Variants.html |
| **zero-temp**(ing**)** | temporary basal rate with 0% (no basal insulin delivery); often seen after a bolus was given: moving some basal (from baseline need, as defined in profile) *into the bolus or SMB* provides for fastest correction; in turn, basal supply is reduced until safe to continue | | |