

TABLE 2 Suggested Insulin Dose-Adjustment Algorithm for FreeStyle Libre Trend Arrows

| Trend Arrow | FreeStyle Libre Trend Definition | Correction Factor (mg/dL)* | Insulin Dose Adjustment (Units)† |
|-------------|--|----------------------------|----------------------------------|
| ↑ | Glucose is rising quickly (>2 mg/dL per minute) | <25 | +4 |
| | | 25–50 | +3 |
| | | 50–75 | +2 |
| | | >75 | +1 |
| ↗ | Glucose is rising (1–2 mg/dL per minute) | <25 | +3 |
| | | 25–50 | +2 |
| | | 50–75 | +1 |
| | | >75 | No changes |
| → | Glucose is changing slowly (<1 mg/dL per minute) | <25 | No changes |
| | | 25–50 | No changes |
| | | 50–75 | No changes |
| | | >75 | No changes |
| ↘ | Glucose is falling (1–2 mg/dL per minute) | <25 | -3 |
| | | 25–50 | -2 |
| | | 50–75 | -1 |
| | | >75 | No changes |
| ↓ | Glucose is falling quickly (>2 mg/dL per minute) | <25 | -4‡ |
| | | 25–50 | -3‡ |
| | | 50–75 | -1§ |
| | | >75 | No changes‡§ |

*Amount of blood glucose-lowering expected from 1 unit of rapid-acting insulin.

†For pre-meal sensor glucose levels <100 or >300 mg/dL, individualized plans with the health care provider are strongly recommended. Target glucose levels should be established with the health care team. For falling glucose trends or when FCGM glucose levels are approaching 70 mg/dL, users should measure glucose levels if prompted by the reader to confirm the presence of hypoglycemia in pre-meal situations; doing so will help prevent unnecessary reduction of pre-meal insulin doses if the glucose value measured by fingerstick testing is not in the hypoglycemic range. Older adults with a history of hypoglycemia unawareness or severe hypoglycemia episodes should be counseled on a case-by-case basis.

‡Consider fingerstick glucose testing if instructed by the reader.

§Consider additional rapid-acting carbohydrate intake (15–30 g).

educational and therapeutic benefits, with the additional advantage of obtaining data relatively painlessly. Developing a plan to review CGM trends in the postprandial period, whether by setting up alerts or by instructing users to scan their FCGM at specific times after meals, can convey the dynamics of post-meal glucose fluctuations to patients and guide providers in personalizing diabetes regimen adjustments based on data accumulated between visits. More studies are needed to address the potential value of FCGM in this clinical setting.

Ideally, all systems should display glucose data on a mobile app so that users do not have to carry multiple tools; this strategy would potentially contribute to acceptance and increase uptake of CGM use in non-insulin-using people with diabetes.

Best Practice for Exercise

Standards of care recommend that most adults with type 1 or type 2 diabetes engage in daily physical activity, allowing no more than two consecutive days without activity (2,53).

BOX 1 Examples of Trend Arrow–Guided Insulin Dose Adjustments with FreeStyle Libre

PATIENT 1 is a 35-year-old man with type 1 diabetes who is planning to eat 50 g of carbohydrate. His insulin-to-carbohydrate ratio is 1:10, his correction factor is 30, and his glucose target is 120 mg/dL. His pre-meal FCGM glucose level is 180 mg/dL with one up-trending arrow. His dose will be adjusted by adding 3 units to his calculated insulin dose.

Calculation: (meal) 5 units + (correction) 2 units = 7 units. Insulin dose adjustment for trend arrow: +3 units. Total dose: 7 + 3 = 10 units

PATIENT 2 is a 60-year-old woman with type 2 diabetes who is planning to eat 50 g of carbohydrate. Her insulin-to-carbohydrate ratio is 1:5, her correction factor is 20, and her glucose target is 100 mg/dL. Her pre-meal FCGM glucose level is 280 mg/dL with one down-trending arrow. Her dose will be adjusted by subtracting 4 units from her calculated insulin dose.

Calculation: (meal) 10 units + (correction) 9 units = 19 units. Insulin dose adjustment for trend arrow: -4 units. Total dose: 19 - 4 = 15 units

PATIENT 3 is a 73-year-old man with type 2 diabetes complicated by renal insufficiency and a creatinine of 2.1 mg/dL. At 11:30 a.m., his FCGM glucose reads 65 mg/dL. He follows the FCGM reader prompt to “check blood glucose.” His blood glucose level is 63 mg/dL. He ingests 15 g of rapid-acting carbohydrate in the form of apple juice. Thirty minutes later, he is ready to eat a lunch, which will include 45 g of carbohydrate. He notices an FCGM glucose level of 105 mg/dL with one up-trending arrow. Per the algorithm, he should increase his dose of insulin by 3 units. His insulin-to-carbohydrate ratio is 1:15, his correction factor is 50, and his glucose target 120 mg/dL.

Calculation: (meal) 3 units + (correction) 0 units = 3 units. Total dose should be 6 units (3 units for the meal + 3 units for algorithm). However, he feels uncomfortable with this dose and decides to take only 1 additional unit of insulin to compensate for the rapidly increasing glucose level. When he scans the FCGM reader 2.5 hours after lunch, he notices an FCGM glucose level of 155 mg/dL, which is acceptable to him. The patient discusses this episode with his health care provider, and together, they modify the algorithm to better suit the specific needs of this geriatric patient with increased risk for hypoglycemia due to decreased renal function.