Libre Flash Glucose Sensor Guidelines
Scanning Frequency and Adjusting Insulin Using Trend Arrows
Insulin Sensitivity Factor (ISF) of 2.8 to 4.1

The Libre Flash glucose sensor gives current and past glucose data when scanned, plus trend arrows. Trend arrows estimate how your glucose level will change in the next 30 minutes. You can use this information to help prevent high or low glucose levels. Talk with your healthcare provider before using the suggestions in this handout. Follow all product instructions as provided by the manufacturer.

When to Scan

<table>
<thead>
<tr>
<th>What do you want to do?</th>
<th>How to do this:</th>
<th>Why this helps:</th>
</tr>
</thead>
<tbody>
<tr>
<td>Get continuous data</td>
<td>Scan every 8 hours</td>
<td>The sensor only holds 8 hours of data.</td>
</tr>
<tr>
<td>Decide on meal doses</td>
<td>Scan before meals</td>
<td>Meal doses depend on carbohydrate to be eaten, current glucose level and trend arrow.</td>
</tr>
<tr>
<td>Assess meals &amp; snacks</td>
<td>Scan hourly for 2-4 hours after eating</td>
<td>Specific foods, portions and meals can affect glucose levels. Make notes in your app or scanner so the next time you eat a certain meal, you can look back and decide how to use insulin, portions or exercise to help reach your target glucose.</td>
</tr>
<tr>
<td>Get a good night’s sleep</td>
<td>Scan before bed</td>
<td>Low or high readings overnight may be prevented by using the current glucose reading and trend arrow. Consider scanning during the night if the day’s activity or food was different from usual.</td>
</tr>
<tr>
<td>Treat a low</td>
<td>Scan every 15 minutes after eating fast-acting carbohydrate.</td>
<td>You may need to re-treat. If still below 4 mmol/L, consider a finger stick check before re-treating. The sensor glucose may not accurately reflect blood glucose levels that change quickly.</td>
</tr>
<tr>
<td>Treat a high</td>
<td>Scan hourly for 2-4 hours after giving correction insulin.</td>
<td>Readings should be dropping. If you have type 1 diabetes, follow guidelines to prevent DKA.</td>
</tr>
<tr>
<td>Assess patterns</td>
<td>Review reports on your scanner, app or the LibreView cloud.</td>
<td>Reports make it easier to find trends – times of the day when your readings are in target or out of target. This helps focus your attention.</td>
</tr>
<tr>
<td>Stay safe with exercise</td>
<td>Scan • before exercise • every 15-30 min • right after • 6-8 hours after</td>
<td>Glucose levels can change quickly during exercise. You may need finger stick checks. The sensor glucose may not accurately reflect blood glucose levels that change quickly. A “low” glucose can occur hours after exercise.</td>
</tr>
</tbody>
</table>
Pre-Meal Suggestions (ISF 2.8 to 4.1)

Once you are comfortable using the Libre and understand its results, you may want to use the trend arrows to help adjust your pre-meal insulin dose (meal and correction insulin). Discuss these suggestions below with your healthcare provider before using.

- “Up Arrows” at meal time means you add units to your usual meal and correction insulin.
- “Down Arrows” at meal time means you subtract units from your usual meal and correction insulin.

**Total pre-meal insulin dose = Meal Insulin + Correction +/- Arrow Adjustment Units**

<table>
<thead>
<tr>
<th>LIBRE ARROW Pre-meal</th>
<th>GLUCOSE CHANGE 1</th>
<th>WHAT TO DO 2</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td>Meal Bolus + Correction +/- Arrow Adjustment</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Calculate your usual meal bolus and correction dose, then add or subtract units for ARROW ADJUSTMENT below.</td>
</tr>
<tr>
<td>↑</td>
<td>Rising Quickly: More than 3.0 mmol/L in 30 minutes</td>
<td>Add 1.5 units</td>
</tr>
<tr>
<td></td>
<td>If you are NOT going to exercise</td>
<td></td>
</tr>
<tr>
<td>↑↑</td>
<td>Rising: 1.8 to 3.0 mmol/L in 30 minutes</td>
<td>Add 1.0 units</td>
</tr>
<tr>
<td></td>
<td>If you are NOT going to exercise</td>
<td></td>
</tr>
<tr>
<td>↑</td>
<td>Changing Slowly: Less than 1.8 mmol/L up or down in 30 minutes</td>
<td>No adjustment</td>
</tr>
<tr>
<td>↓</td>
<td>Dropping: 1.8 to 3.0 mmol/L in 30 minutes</td>
<td>Subtract 1.0 units</td>
</tr>
<tr>
<td></td>
<td>See notes above*</td>
<td></td>
</tr>
<tr>
<td>↓</td>
<td>Dropping Quickly: More than 3.0 mmol/L in 30 minutes</td>
<td>Subtract 1.5 units</td>
</tr>
<tr>
<td></td>
<td>See notes above*</td>
<td></td>
</tr>
</tbody>
</table>

*Note: If you have any down arrows and are 5.5 mmol/L or less before eating, consider doing a finger stick check. You may be low already and need fast-acting carbohydrate.*
Pre-Meal Example:

Here’s how Susan planned for supper insulin on two occasions. In each case, she waited 15 minutes to see if her Libre trend arrows changed. They did not. She did not plan exercise after these meals. Susan has an insulin sensitivity factor (ISF) of 3 and an insulin to carbohydrate ratio of 1 unit for 15 grams. Her target glucose is 6.0 mmol/L.

### Friday Supper

1. **Decide on meal bolus as usual**
   - Grams of carbohydrate: 45
   - Insulin to Carb Ratio: 15
   - Meal dose: 3.0 units

2. **Decide on correction dose as usual**
   - Libre reading: 12.0 mmol/L ≥
   - Subtract target: -6.0 mmol/L
   - Amount to drop: 6.0 mmol/L
   - Divide by ISF: 3
   - Correction Dose: 2.0 units

3. **Add units for arrow adjustment**
   - Usual food dose: 3.0 units
   - Usual correction dose: +2.0 units
   - Arrow ↑ adjustment: +1.5 units
   - Total meal insulin: 6.5 units

### Sunday Supper

1. **Decide on meal bolus as usual**
   - Grams of carbohydrate: 45
   - Insulin to Carb Ratio: 15
   - Meal dose: 3.0 units

2. **Decide on correction dose as usual**
   - Libre reading: 12.0 mmol/L ↓
   - Subtract target: -6.0 mmol/L
   - Amount to drop: 6.0 mmol/L
   - Divide by ISF: 3
   - Correction Dose: 2.0 units

3. **Subtract units for arrow adjustment**
   - Usual food dose: 3.0 units
   - Usual correction dose: +2.0 units
   - Arrow ↓ adjustment: -1.5 units
   - Total meal insulin: 3.5 units

Your Turn Before Meals: **Meal Bolus + Correction +/- Arrow Adjustment**

1. Before lunch, your Libre glucose reading is 10.0 mmol/L ↓. According to the chart on page one, you would subtract units from your usual meal insulin. E.g. meal bolus PLUS correction MINUS ___ units for ↓. Fill in the blank.

2. Before breakfast, your glucose level is 10.0 mmol/L →. You can expect your glucose to stay stable as you don’t plan to exercise. You calculate your usual Meal Bolus + Correction dose. According to the chart on page one, would you add or subtract any units for arrow adjustment?

3. Before supper, your glucose level is 5.0 mmol/L ↑. You don’t plan on exercising. How would you calculate your supper insulin? Remember: Meal Bolus + Correction +/- Arrow Adjustment

4. Before supper, your glucose level is 5.0 mmol/L ↓. What would you do?
### Hyperglycemia Prevention: Using Libre Trend Arrows 2-4 hours After Meal

<table>
<thead>
<tr>
<th>Glucose reading 2-4 hours after eating</th>
<th>WHAT TO DO: If arrow ‪↑ or ‪↓</th>
</tr>
</thead>
</table>
| **10.1 mmol/L or more**               | • If you have Type 1 diabetes, test for ketones if glucose 14 mmol/L or greater. Follow the guidelines for preventing DKA. If you have ketones do a finger stick check before giving 1.5 times the correction dose.  
• Do not add units for arrow adjustment.  
• Take usual correction dose (or the dose recommended in the guidelines for preventing DKA if you have type 1 diabetes).  
• Correct to 10.0 mmol/L if it’s only 2 hours after eating.  
• Avoid correcting again for at least another 2 hours.  
• Scan in 1 hour and if “up” arrow, confirm with a finger stick |
| **10 mmol/L or less**                  | • Scan in 1 hour and if “up” arrow, confirm with a finger stick |

### Hypoglycemia Prevention: Using Libre Trend Arrows 2-4 hours After Meal

<table>
<thead>
<tr>
<th>Glucose reading 2-4 hours after eating</th>
<th>WHAT TO DO: If arrow ‪↓ or ‪↑</th>
</tr>
</thead>
</table>
| **10 mmol/L or less**                 | • If 5.5 mmol/L or lower, consume 15 g fast-acting carbohydrate  
• Scan in 15 minutes  
• Consider a finger stick check if:  
  ◦ ↓ arrow at any time, as glucose changing rapidly or  
  ◦ Reading is less than 4 mmol/L or  
  ◦ You think you need another 15 g fast-acting carbohydrate, reading continues dropping or hasn’t responded as you’d expect. |
| **10.1 mmol/L or more**               | • Scan in 15 minutes  
• If ↓ arrow, consider a finger stick check as glucose changing rapidly |

After meal (2-4 hour) examples:

1. Your glucose reading 3 hours after eating is 14.1 mmol/L ↑. What could you do?
2. Your glucose reading 2 hours after eating is 13.1 mmol/L ↑. What could you do?
3. Your glucose reading 3 hours after eating is 5.4 mmol/L→. This is a stable arrow. Do you need fast-acting carbohydrate?
4. Your glucose reading 2 hours after eating is 5.2 mmol/L ↓. Do you need fast-acting carbohydrate?

References:
1. Freestyle LibreLink App User Manual – Canada 08/18