

# GLUCOSE MONITORING

## *Expert recommendations*



In addition to the benefits associated with continuous glucose monitoring (CGM), studies have shown that using a structured schedule for blood glucose/sugar monitoring leads to better blood glucose control and more timely therapy adjustments. Each person's monitoring schedule should be individualized, but it often hinges on the type of therapy being utilized. The American Association of Clinical Endocrinologists and the American Diabetes Association and recommend the following:

### **WHEN TO CHECK GLUCOSE**

Each person's monitoring schedule should be individualized, but it often hinges on the type of therapy being utilized. The American Association of Clinical Endocrinologists and the American Diabetes Association and recommend the following:

#### **THOSE USING INTENSIVE INSULIN THERAPY (PUMP OR MULTIPLE DAILY INJECTIONS):**

- \* Prior to meals, snacks and bedtime
- \* Prior to exercise and driving (or other critical tasks)

- \* Occasionally 1-2 hours after meals\*
- \* When low blood glucose is suspected, and during recovery from lows

#### **THOSE USING BASAL/LONG-ACTING INSULIN ONLY**

- \* Fasting (upon waking)
- \* Bedtime
- \* Prior to any meals when rapid insulin is taken
- \* Periodically at other times of day (pre-meals, post-meals, middle of the night)\*



**THOSE TAKING PREMIXED INSULIN ONCE OR TWICE DAILY**

- ✗ Fasting
- ✗ Before meals
- ✗ Occasionally 1-2 hours after meals\*

**NON-INSULIN USERS TAKING MEDS THAT CAN CAUSE HYPOGLYCEMIA**

- ✗ Fasting
- ✗ Periodically at other times of day (pre - meals, post-meals, middle of the night)\*

**WOMEN WITH GESTATIONAL DIABETES, NOT USING INSULIN**

- ✗ Fasting
- ✗ 1-hour postmeals

\* When periodic checks are needed at various times of day, consider a "rotating" approach: breakfast one day, lunch the next, dinner the next, etc.

Of course, just about everyone with diabetes will need to increase the frequency of blood glucose checks during periods of illness, stress, trauma, hospitalization, and before/after medical procedures.

**WHAT TO AIM FOR**

Each person's blood glucose targets should be individualized and based on the recommendations of your healthcare providers. Certain conditions (pregnancy, presence or high risk of diabetes complications, low risk of hypoglycemia) may necessitate tighter targets. Other conditions (intensive insulin use, hypoglycemia unawareness, advanced or very young age, history of severe hypoglycemia, unstable heart disease) often require looser targets.

The American Diabetes Association, in its Standards of Medical Care in diabetes, recommends the following glucose targets\*:

	Fasting/Pre-Meal	Post-Meal
Non-Pregnant Adults	80-130 mg/dl	<180 mg/dl (1-2 hours after meal)

\*More or less stringent glycemc goals may be appropriate for each individual.

The American Association of Clinical Endocrinologists and American College of Endocrinology, recommend the following:

	Fasting/Pre-Meal	Post-Meal
Non-Pregnant Adults	<110 mg/dl	<140 mg/dl (2 hours after meal)



## ENSURING ACCURACY

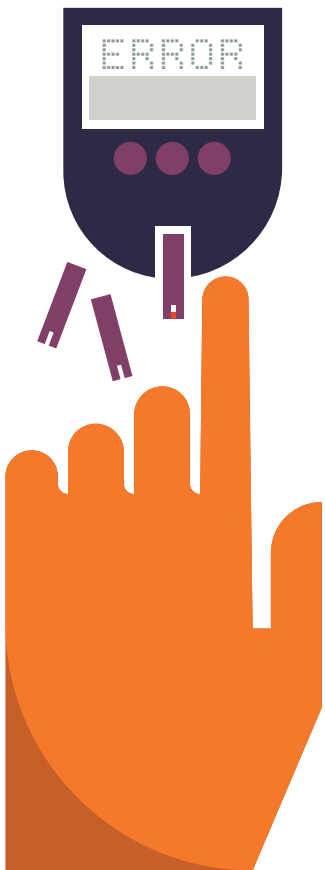
Research has shown that inaccurate glucose monitoring leads to an increased risk of hypoglycemia, more blood glucose variability, and higher A1C levels. Conversely, more accurate monitoring results in fewer lows and better A1C's.

One major source of meter inaccuracy is the design of the meter itself. Some meters are naturally more accurate than others. Current guidelines require meters to be within 15% of lab values at least 95% of the time. However, some meters are considerably more accurate than the “bare minimum.” This is of particular importance for those who base their insulin doses on their meter readings. Check the “product specifications” section of your meter’s user manual to see how often your meter is within 15%, 10%, and 5% of lab values. The higher the percentage of readings within these ranges, the more accurate the meter.

## OTHER FACTORS THAT CAN AFFECT ACCURACY:

Underfilling test strips can cause erroneous readings in the majority of meters on the market. Apply a sufficient blood sample to your strips. Any time you get a result that is very different from what you expected, check again.

Alternate site testing (using blood samples from sites other than fingertips) may produce lower-than-actual readings when the blood glucose is rising quickly, and higher-than-actual readings when the blood glucose is falling quickly. Use fingers for checking after meals and during exercise.



Contaminants on the skin (food, lotion, dirt) can artificially raise readings. Clean your skin before checking.

Extreme environmental conditions (altitude, temperature, humidity) can also influence meter accuracy. Check your meter manual for the conditions under which your meter is deemed accurate.

## BENEFITTING FROM YOUR DATA

Those who review their data more often can benefit in a number of ways: better blood glucose control, faster adjustment to changing conditions, better ability to predict and prevent hypoglycemia, a more positive approach to self-monitoring, and a reduced risk of complications and hospitalizations. Diabetes educators are uniquely qualified to help you analyze your blood glucose records and teach you how to evaluate your own data. Ask your doctor or local hospital for a referral to a diabetes education program.