









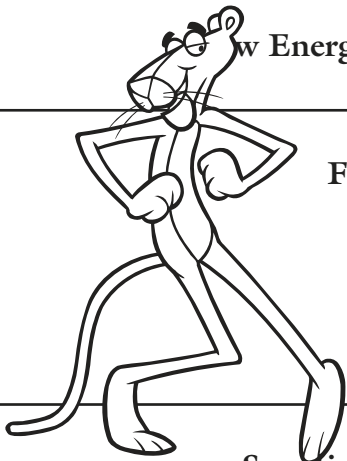

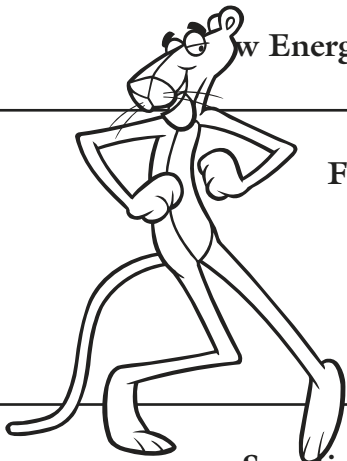


Chapter 7

Blood Sugar (Glucose) Testing

WHEN?

-  four or more times each day (usually before meals and the bedtime snack)
-  food should not be eaten within the two hours before a test
-  at least once weekly, two hours after each meal
-  anytime the symptoms of a low blood sugar are felt
-  occasionally during the night
-  anytime unusual symptoms occur (e.g., frequent voiding)

Blood Sugar Level in mg/dl (mmol/L)			
VERY HIGH 400-800 (22.2-44.4)			 Stomachache Difficulty Breathing
HIGH 200-400 (11.1-22.2)			 Low Energy
GOALS			
80-200 (4.5-11.1)	Under 5 years		 Fine
70-180 (3.9-10.0)	5-11 years		
70-150 (3.9-8.3)	12 years and up		
LOW below 60 (below 3.3)	True-Low		 Sweating Hunger Shakiness
NON-DIABETIC NORMAL VALUES FOR CHILDREN*			
70-100 (3.9-5.5)	Normal (fasting)*		
70-130 (3.9-7.3)	Normal (random)*		

*The DirecNet Study Group showed that approximately 95 percent of values for non-diabetic children are in this range. However, occasional values down to 60 mg/dl (3.3 mmol/L) and, for random values, up to 144 mg/dl (8.0 mmol/L) are still normal.

ALWAYS BRING YOUR METER (and log book) TO YOUR CLINIC VISITS.



GOALS

The values for which to aim are different for each age group and are shown in the table below. At least half of the values at each time of day should be in the desired range for age. The values refer both to fasting and anytime food has not been eaten for two or more hours.

Suggested Blood Sugar Levels

Age (years)	Fasting (a.m.) or no food for 2 hours		Bedtime (before bedtime snack or during the night)	
	mg/dl	mmol/L	mg/dl	mmol/L
Below 5	80-200	4.5-11.1	Above 150* [80**]	above 8.3* [4.5**]
5-11	70-180	3.9-10.0	Above 130* [70**]	above 7.3* [3.9**]
12 and above	70-150	3.9-8.3	Above 130* [60**]	above 7.3* [3.3**]

*If values are below these levels, milk or other food might be added to the solid protein and carbohydrate bedtime snack.

**If values are below these levels, the test should be rechecked 10-30 minutes later to make certain it has come back up. If this happens more than once within a week, either reduce the dinner rapid-acting or Regular insulin or call the diabetes care provider for advice.

Note: The ADA recommended sugar levels for children of different ages vary somewhat from our suggestions. The levels for before meals and during the night recommended by the ADA can be found in Table 1 of Chapter 14.

DOING THE TESTING

Finger-Pokes: There are now many good devices. Most can be set for different depths. These may help young children or the elderly who do not need a lancet to go as deep.

How to:

- Get piker ready; insert lancet (change daily).
- Wash hands with soap and warm water; dry.
- Poke side or tip (not ball) of chosen finger or of arm (alternate site testing)**.
- To get enough blood, hold hand down (below heart level) and “milk” the finger.
- Wipe off the first drop of blood with a cotton ball.
- Put the second drop of blood on the test strip as taught for each meter.
- Hold cotton ball on poke site to stop bleeding.

Meters: We do not recommend one meter over another.

- We do like meters that can store at least the last 100 values.
- The meter must also be able to be downloaded by the family or clinic.
- Strips requiring smaller amounts of blood make it easier for young children.
- Make sure the code in the meter matches the code for the strips.
- **The meter must always be brought to the clinic visit.**

****Alternate Site Testing:** Some meters now require such a small drop of blood that it can be obtained from the arm or another site.

****However,** if feeling low, the fingertip must be used as circulation is not as good in other sites and the true blood sugar level may be delayed by 10-20 minutes.



Log books: It is important to record results.

- Look for patterns of highs and lows.
- If too many lows occur, the results should be sent to the nurse or doctor by fax or e-mail (e.g., more than 2 values per week below 60 mg/dl [3.3 mmol/L]).
- If too many highs occur, the results should be sent to the nurse or doctor by fax or e-mail, (e.g., more than 2 values at the same time of day in a week above 300 mg/dl [16.7 mmol/L]).
- Parents (even of teens) must do or supervise the recording of the values and the sending of the results.
- **Bring the log book to the clinic visit.**

Feelings: It is important not to be upset if highs or lows are found. This can make testing a negative experience. Just use the data to adjust the insulin and/or to prevent future highs or lows. The only response should be **“Thank you for doing the test.”**

Continuous Glucose Monitoring (CGM)

Diabetes management is gradually moving toward CGM. This involves wearing a sensor for three to five days which will send subcutaneous (not blood) glucose values to a receiver. The CGM devices are not yet as accurate as the blood glucose meters.

Stay calm,
the blood sugar
will come down.

