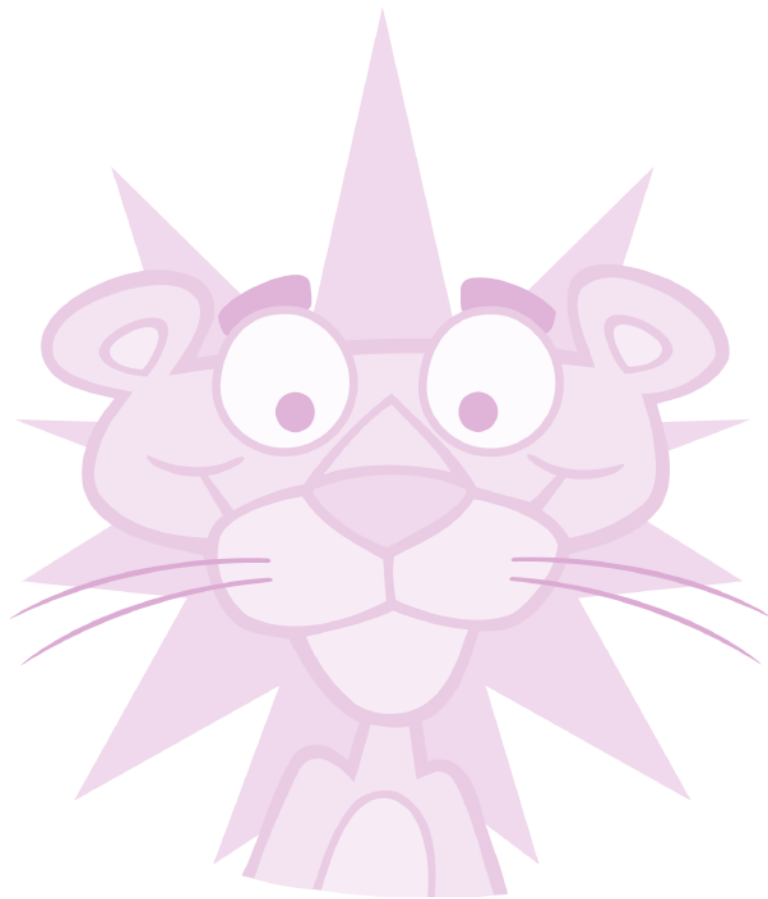


Chapter 5

Ketone Testing



Ketone testing is very easy and very important.

A. NEWLY DIAGNOSED PERSON:

- 1 The first goal for new patients is to clear their ketones.

Ketones come from fat breakdown. Insulin stops fat breakdown and prevents ketones from being made.

- 2 The second goal is to lower their blood sugar levels.

Insulin also turns off sugar production from the liver.

B. A PERSON WITH KNOWN DIABETES:

When to check for ketones (either in urine or blood):

- during any illness
- with a very high blood sugar (e.g., above 300 mg/dl [16.7 mmol/L])
- if an insulin shot is missed
- after vomiting even once
- with a blockage of an insulin pump catheter or pump failure

If ketones are present, extra insulin can be given to stop the ketones from being made. (Ketones need to be found early and extra insulin given or the person may get very sick; see Chapter 15.)

C. HOW TO TEST FOR KETONES

A method to test for ketones must always be in the home and taken along on trips. Failure to do the ketone test when indicated could result in the person becoming very sick. Ketones can be checked using either urine or a drop of blood. The urine test is cheaper, although testing the blood has the advantage of telling how high the ketones are at that moment (as well as other advantages).

URINE TESTING

The two main strips used are:

1. Ketostix®: comes in foil wrapping that allows them to last longer.

This strip is dipped into the urine and is read as negative, trace, small, moderate, large, or large-large after *exactly* 15 seconds.

2. Chemstrip K®: comes in bottles and are not foil wrapped. All non-foil wrapped strips (including non-foil wrapped Ketostix in a bottle) must be thrown out six months after the bottle is opened.

This strip is dipped into the urine and is read as negative, trace, small, moderate, large or large-large after *exactly* 60 seconds.

BLOOD TESTING

Some people prefer to use the Precision Xtra® meter to test blood ketones.

- The red calibration strip must be placed in the meter first.
- Next, the blood ketone strip is inserted with the three black bars facing up.
- Then a drop of blood is placed in the purple hole of the strip.
- The result is given in about 10 seconds.

Table
Comparison of Blood and Urine Ketone Readings

Blood Ketone (mmol/L)	Urine Ketone		
	Strip color	Level	Action to take
less than 0.6	slight/no color change	negative	normal - no action needed
0.6 to 1.0	light purple	small to moderate**	extra insulin & fluids***
1.1 to 3.0	dark purple	moderate to large**	call MD or RN**
greater than 3.0	very dark purple	very large	<u>go directly to the E.R.</u>

**It is usually advised to call a health care provider for a blood ketone level greater than 1.0 or with urine ketone readings of moderate or large.

***If the blood glucose level is below 150 mg/dl (8.3 mmol/L), a liquid with sugar (e.g., juice) should be taken.