

or thigh may be used (change the site used if frequent measurements are needed).

- Use an alcohol swab to clean the site and let the alcohol dry.
- Insert the test strip into the monitor, following the instructions (Figure 1).
- Use a single-use lancet or a lancing device to draw blood (Figure 2) and dispose of it in a sharps container.
- Apply the blood to the testing strip (Figure 3) in the correct way: some strips need the blood drop to be over the whole of the test pad and some suck up the blood directly from the site of the bleeding.
- Place the alcohol swab (note: it will sting) or a piece of gauze over the site (Figure 4) and hold it there, or let the patient hold it there until the bleeding stops. Monitor for excess bleeding.
- Read and record the result, reporting and/or responding to abnormal readings.
- Tell the patient what the result is, explain it and discuss options.
- Dispose of all used equipment safely, in line with hospital or health care policies.

## Calibrating the blood glucose monitor

- Calibrate the monitor and each new pack of test strips together.
- Calibrate the monitor each week.
- Place the control solution on a test strip and check that the value shown on the monitor matches the value on the bottle (or the pack of strips it accompanies). Record the calibration readings.
- If one is provided, use the check strip to make sure that the meter is working.

# Understanding and caring for a Schiøtz tonometer



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A Schiøtz tonometer is an instrument for measuring the intraocular pressure (IOP).

Although the Schiøtz tonometer does not make as precise measurements as other types of tonometers, it is inexpensive, simple to use, durable, requires little maintenance, does not have electronics, does not require batteries, and can be stored for years between uses. These qualities make it well suited for screening and remote or mobile clinics.

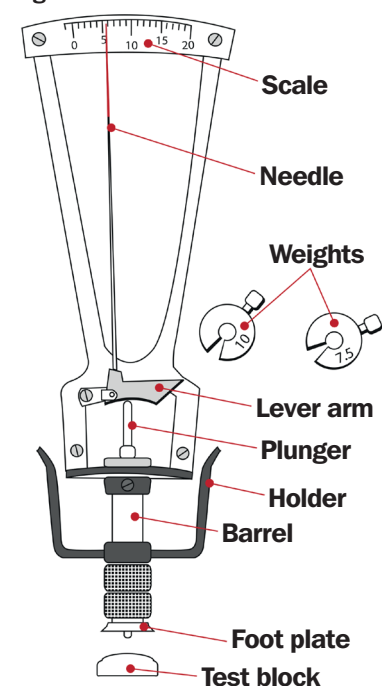
The Schiøtz tonometer consists of a hollow barrel with a concave footplate and a holder (Figure 1). A free-floating, rod-like plunger with a 5.5 gram weight attached fits inside the barrel. When held vertically on top of the eye, the plunger will move downwards by gravity and indent the cornea. This very small up-and-down movement is magnified by a lever arm to move a needle that gives a reading on a horizontal scale numbered arbitrarily 0–20. A firmer eye, due to higher IOP, will result in a lower indentation and a lower reading on the scale.

Since the Schiøtz tonometer does not measure pressure directly, a conversion table, supplied with the instrument, is used to translate scale readings into estimates of IOP in mmHg. To account for the range of pressure, other weights (typically 7.5 g and 10 g) are supplied that can be added to the plunger.

**Table 1. Schiøtz scale conversion table**

Scale reading	Ocular pressure, mmHg		
	5.5 g weight	7.5 g weight	10.0 g weight
3.0	24.4	35.8	50.6
4.0	20.6	30.4	43.4
5.0	17.3	25.8	37.2
6.0	14.6	21.9	31.8
7.0	12.2	18.5	27.2
8.0	10.2	15.6	23.1
9.0	8.5	13.1	19.6
10.0	7.1	10.9	16.5

**Figure 1**



## Calibration check procedure

A calibration check should be done at the start of every day. Place the footplate of the instrument on the rounded test block (the dummy cornea) provided with the tonometer's storage case. With the footplate resting on the test block, a correctly calibrated instrument will have a scale reading of zero.

If not, you can calibrate it to zero.

- If the needle is to the **left** of zero, rotate the footplate in a **clockwise** direction and check again.
- If the needle is to the **right** of the zero position, rotate the footplate in an **anti-clockwise** direction.

## Cleaning

Cleaning of the barrel and the plunger should be done once a day to prevent the plunger from sticking to the barrel.

- 1 Remove the plunger and use gauze with alcohol to clean the plunger and tip.
- 2 Clean the inside of the barrel with an alcohol-soaked cotton swab and then with a dry cotton swab.
- 3 Clean the footplate with gauze and alcohol.
- 4 Allow it to dry and then place, disassembled, in its case.

In between patients, the Schiøtz tonometer should be disinfected by soaking it in sodium hypochlorite.

**Figure 4**



Elmien Wolvaardt/Elison