

# Selfmonitoring of glycemia

**Self-monitoring** of blood glucose – at home, lay measurement, *Self-Monitoring of Blood Glucose – SMBG*. The patient monitors his blood sugar with a glucometer, on an empty stomach, after a meal and during the day and night.

## Purpose of self monitoring

- Monitoring of glyceimic profiles (GP)
  - Low glyceimic profile (3-4 blood glucose measurements, before each main meal and at bedtime), with impaired compensation.
  - Large glyceimic profile (8 measurements per day - before main meals, 2 hours after them, before bedtime, and at 3 o'clock at night).
- Patient's response to glyceimic control - the patient actively participates in treatment and makes changes in the dosage of drugs and insulin, allowing changes in diet and physical activity.
- Implementation of ongoing records.
- Submission of records at the doctor's examination - adjustment of treatment.
- Consultation with a diabetologist.

## More frequent self-monitoring is required

- in pregnant diabetics,
- in diabetics treated with an insulin pump,
- in diabetics with acute illness,
- in patients with the hypoglycemic syndrome.

## The goal of selfmonitoring

- Reveal a period when the patient has glyceimic fluctuations.
- Adjust patient fluctuations.
- Create a picture of the glyceimic profile.
- Detect early periods with risks of hypoglycemia.

## Achieving and maintaining of normoglycemia

Self-monitoring is considered an important and necessary part of the treatment of diabetes and the prevention of its complications. Monitoring the current blood glucose status helps the diabetic patient to gain an overview of the blood glucose status and thus helps to **improve the compensation** of diabetes and **slow down the progression** of the disease. By knowing their current metabolic status, the patient can also influence their diet and diet, influence their glyceimic profile (GP) and actively participate in self-management and treatment of diabetes.

## Glucometer and its use

Initially, self-monitoring was performed based on urine tests, giving a picture of blood sugar levels with a delay of several hours. More accurate measurement methods are currently used – glucometers, which work on the electrochemical method of measuring electric current on a test strip. Modern glucometers are equipped with a memory for 50-500 measurements and can communicate with a PC using software and wirelessly (Infraport or Bluetooth technology). Not only does the patient have to use capillary blood from his fingertips, but he can also take blood from other places (shoulder, forearm, hand, thigh, or calf) and the collection is less painful. The patient's blood glucose readings include the date and time and are stored in the meter's memory. The patient can send them electronically to the doctor at any time and consult him for further treatment procedures.

## Continual glycemia measurment (CGM)

Continuous blood glucose measurement is a method of measuring the concentration of glucose in the interstitial fluid of the subcutaneous tissue using a sensor in an interval of 1-5 minutes. The measured data are transferred to a monitor or to a PC and thus provide a more complete picture of changes in blood glucose compared to conventional self-monitoring. High cost, sensor life, and accuracy (difference in interstitial glucose concentration compared to blood glucose concentration) become limiting.

## Principles of patient self-monitoring

- Proper storage of the glucometer and test strips.
- Do not use test strips after their expiration date, a regular check of date, time, and glucometer battery.
- Wash and dry your hands thoroughly before blood collection.
- Alternate injection sites.
- Change your autolancet or lancet regularly and do not share it with others.

# Resources

## Related articles

- Diabetes mellitus type2
- Diabetic education
- Pancreatic hormones
- Insulin

## References

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