

Urine Testing

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Urine tests, though no longer recommended for blood glucose control, still play an important role in diabetes care by detecting the presence of ketones.

BEFORE THE ADVENT of blood glucose monitors, urine testing was the only method available for gauging blood glucose levels in one's system. But it is an imprecise method and does not provide a complete picture of diabetes management.

In most cases, for example, glucose is not detectable in the urine unless the blood glucose levels have been above 180 mg/dl, which means that urine tests are virtually useless at detecting hypoglycemia (low blood glucose levels) and in detecting mild to moderate hyperglycemia (blood glucose between 100 and 180 mg/dl). For this reason and others, health care providers recommend that those interested in attaining good blood glucose control use blood glucose monitors, not urine test strips or tablets. But urine testing is still very important in diabetes care. For example, if the body burns fat for fuel in the absence of insulin, ketones are produced, and these substances find their way into the urine. If ketone bodies build up, they can lead to very serious energy problems in the body, resulting in diabetic ketoacidosis. The body tries to dispose of ketones as quickly as possible when they are present in the system. Urine test strips can detect ketones as the body tries to rid itself of them.

Ketone testing should be performed by people with type 1 diabetes when their blood glucose is high (usually greater than 240 mg/dl), or as directed by their physician. All people with diabetes who are sick, under stress, or who have blood glucose over 300 mg/dl should also test for ketones, as should pregnant women with

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URINE TESTING PRODUCTS FOR KETONES AND GLUCOSE

Product (Manufacturer/ Distributor)	Packaging	Measures Glucose	Measures Ketones	Readings
TABLETS				
Acetest Reagent Tablets (Bayer HealthCare, LLC)	100	No	Yes	Ketones: small, moderate, large
Clinitest Reagent Tablets (Bayer HealthCare, LLC)	36, 100, 100 (foil wrapped), kit (36 tablets, test tube, dropper)	Yes	No	Glucose: 2-drop method: 0, trace, ½%, 1%, 2%, 3%, 5%+; 5-drop method: 0, ¼%, ½%, ¾%, 1%, 2%+
STRIPS				
Clintix Reagent Strips (Bayer HealthCare, LLC)	50	Yes	No	Glucose: negative, light, medium, dark
DiaScreen 1G (Arkray)	50, 100	Yes	No	Glucose: negative, 50, 100, 250, 500, 1,000
DiaScreen 1K (Arkray)	50, 100	No	Yes	Ketones: negative, trace/5, +/15, ++/40, +++/80, ++++/160
DiaScreen 2GK (Arkray)	100	Yes	Yes	Glucose: negative, 50, 100, 250, 500, 1,000; Ketones: negative, trace/5, +/15, ++/40, +++/80, ++++/160
Diastix Reagent Strips (Bayer HealthCare, LLC)	50, 100	Yes	No	Glucose: 0, 1/10%, ¼%, ½%, 1%, 2%
KetoCare Ketone Test Strips (Home Diagnostics)	50, 100	No	Yes	Ketones: negative, trace, small, moderate, large
Keto-Diastix Reagent Strips (Bayer HealthCare, LLC)	50, 100	Yes	Yes	Glucose: 0, 1/10%, ¼%, ½%, 1%, 2%; Ketones: 0, trace, small, moderate, large
Ketostix Reagent Strips (Bayer HealthCare, LLC)	20 (foil wrapped), 50, 100	No	Yes	Ketones: 0, trace, small, moderate, large

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any type of diabetes (type 1, type 2, or gestational). And, of course, anyone who suspects onset of ketoacidosis should test for ketones immediately. Check with your diabetes health care professional about the ketone testing guidelines and record-keeping methods he or she recommends.

Ketone strips are available in foil-

wrapped packets or vials. Follow all manufacturer's guidelines and procedures.

Test results are revealed through color changes, which indicate the presence of ketones, either quantitatively (for example, 5 mg/dl, 15 mg/dl, etc.) or by descriptive terms (for example, negative, trace, small, or large). False positives

may occur if you are also using certain medications or vitamins, or if the strips have been handled or stored improperly.

New blood ketone testing monitors more accurately detect some ketone bodies (see RG42) and may be preferred by some providers, or they may be used in combination with urine strips. ▲