



GENERAL HEALTH TESTING

# Hemoglobin A1c Information Sheet

## What is Hemoglobin A1c?

Hemoglobin A1c (HbA1c) forms when hemoglobin within red blood cells joins with glucose. HbA1c levels reflect the average blood glucose level during the preceding 2-3 months. This differs from a blood glucose test, which measures the concentration of glucose at only the point at which the blood sample was collected.

## What are optimal HbA1c levels?

Measurements of HbA1c are useful for assessing diabetes risk, diagnosis, and control, as well as part of an evaluation of cardiac health (1). Healthy HbA1c levels are less than 5.7% or 38.8 mmol/mol (2).

## HbA1c and diabetes

HbA1c measurements are useful for determining the risk and diagnosis of diabetes. 5.7% - 6.4% indicates prediabetes, while  $\geq 6.5\%$  supports a diabetes diagnosis. The recommended goal for diabetic adults is to maintain a HbA1c level of  $< 7.0\%$  (2).

Higher HbA1c levels are also associated with an increased risk of diabetic health complications, such as retinopathy, heart failure, and peripheral vascular disease (3). Diabetic individuals generally require an HbA1c test every 3-12 months to ensure that their blood sugar is staying within the target range (2).

## HbA1c and cardiovascular health

Higher levels of HbA1c are associated with an increased risk of peripheral arterial disease, even among patients without diabetes (4).

## What influences HbA1c analyses?

Various different factors may lead to misleading HbA1c results, including diseases that affect haemoglobin (e.g. anemia), specific supplements (e.g. vitamins C and E), pregnancy, significant blood loss, high cholesterol, kidney and liver disease (5).

## How can I reduce my HbA1c levels?

A combination of diet, exercise, and medication can lower HbA1c levels. Several studies, including the Diabetes Control and Complications Trial (6), have demonstrated that improving HbA1c by 1% for people with diabetes (type 1 or type 2) reduces the risk of microvascular complications by 25%.

# Hemoglobin A1c Information Sheet

## Where can I find more info?

Visit [www.genetrackdiagnostics.com](http://www.genetrackdiagnostics.com) for full test information, including specimen collection requirements

### CONTACT US:

Email: [support@genetrackdiagnostics.com](mailto:support@genetrackdiagnostics.com)  
Phone: 1-888-802-0703

### NOTE:

This brochure is provided for general information purposes only. It is not intended to replace medical advice from a health professional.

### References:

- (1) Fonseca V, Inzucchi SE, Ferrannini E. (2009). Redefining the diagnosis of diabetes using glycated hemoglobin. *Diabetes Care*. 32(7), 1344- 1345.
- (2) American Diabetes Association Workgroup Report: International Expert Committee report on the role of the A1c assay in the diagnosis of diabetes. (2009) *Diabetes Care*, 32(7), 1327-1334.
- (3) Eeg-Olofsson K, et al. (2010). New aspects of HbA1c as a risk factor for cardiovascular diseases in type 2 diabetes: an observational study from the Swedish National Diabetes Register (NDR). *J Int Med*. 268(5), 471-482.
- (4) Muntner O, et al. (2005). Relationship Between HbA1c Level and Peripheral Arterial Disease. *Diabetes Care*. 28(8), 1981-1987.
- (5) Peacock I. (1984). Glycosylated haemoglobin: measurement and clinical use. *J Clin Pathol*. 37, 841-851.
- (6) The Diabetes Control and Complications Trial Research Group. (1993). The effect of intensive treatment of diabetes on the development and progression of long-term complications in insulin-dependent diabetes mellitus. *N Engl J Med*. 329(14), 977-986.