Adiponectin

CPT Code 83516
Sample Type Serum

Order Code C314
Tube Type Tiger Top

metabolic

Decreased adiponectin levels are associated with:

- Metabolic syndrome
- Type 2 diabetes
- Coronary artery disease

Adiponectin levels can be increased by:

- Weight loss
- Exercise
- Certain diabetes medications

Description

Adiponectin is an abundant hormone released by adipocytes (or fat cells), commonly referred to as an adipokine. Adiponectin plays a large metabolic role in the body, participating in the regulation of glucose levels, insulin sensitivity and lipid catabolism. Adiponectin also helps support proper endothelial functioning and has multiple anti-inflammatory properties, including inhibiting the transformation of macrophages to foam cells, one of the first steps of atherosclerosis.

Unlike other adipokines, adiponectin levels are lower in obese individuals. As adipocytes become larger with weight gain, they release less adiponectin. Among healthy individuals, women typically have higher adiponectin levels than men, and adiponectin levels tend to decrease as a person ages.

Clinical Use

Adiponectin testing may be performed on individuals at risk of metabolic syndrome or diabetes due to poor lifestyle choices.

Clinical Significance

- Individuals with low adiponectin levels have a 3X greater risk of developing metabolic syndrome[1].
- Men with two or more risk factors for metabolic syndrome and high adiponectin levels are half as likely to develop metabolic syndrome as men with low adiponectin levels[2].
- Individuals with low levels of adiponectin are up to 9X as likely to develop type 2 diabetes[3].
- Individuals with low adiponectin levels have a 2X increase in the prevalence of CAD[4].

Testing Frequency

Adiponectin testing should be performed semi-annually or annually as necessary. If the initial test result is abnormal, then follow-up testing may be performed within 3-6 months following treatment.

Commercial Insurance or Medicare Coverage

Coverage guidelines, also known as NCD (National Coverage Determination) or LCD (Local Coverage Determination), have not been established or posted by CMS (Medicare & Medicaid) nor have they been posted by the majority of the larger Carriers (Aetna, United HealthCare, Cigna, Blues). Reimbursement has been established by Medicare for adiponectin. Medical necessity and specificity of diagnosis should be provided when ordering this test.

Understanding Medical Necessity

The following ICD-10 codes for adiponectin are listed as a convenience for the ordering physician. The ordering physician should report the diagnosis code that best describes the reason for performing the test.

Diagnosis	Diagnosis Code
Hypothyroidism, Unspecified	E03.9
Pure Hypercholesterolemia, Unspecified	E78.00
Familial Hypercholesterolemia	E78.01
Mixed Hyperlipidemia	E78.2
Other Hyperlipidemia	E78.4
Hyperlipidemia, Unspecified	E78.5
Essential (primary) Hypertension	I10
Impaired Fasting Glucose	R73.01

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REFERENCE RANGE

Adiponectin
(µg/mL)

	Body Mass Index	Weight	Normal Adiponectin Levels
Men	<25 kg/m^2	Underweight/Normal	4-26 µg/mL
	25-30 kg/m^2	Overweight	4-20 µg/mL
	>30 kg/m^2	Obese	2-20 µg/mL
Women	<25 kg/m^2	Underweight/Normal	5-37 µg/mL
	25-30 kg/m^2	Overweight	5-28 µg/mL
	>30 kg/m^2	Obese	4-22 µg/mL

Treatment Considerations

These treatment considerations are for educational purposes only. Specific treatment plans should be provided and reviewed by the treating practitioner.

✓ **Assess lifestyle habits.**

- Consider diet/exercise/weight reduction efforts as appropriate.

  Note: *The Look AHEAD Study demonstrated that intensive lifestyle interventions, in obese diabetic individuals, resulted in weight loss coupled with improved HDL-C levels that are significantly associated with, and possibly mediated by, adiponectin levels[5]. These interventions also resulted in improved cardiovascular fitness, independent of weight loss, but associated with adiponectin levels[6].*

References

1. Chen SJ et al. Relationships between inflammation, adiponectin, and oxidative stress in metabolic syndrome. *PLoS ONE*. 2012; 7: e45693.
2. Kotooka N et al. Predictive value of high-molecular weight adiponectin in subjects with a higher risk of the development of metabolic syndrome: From a population based 5-year follow-up data. *Int J Cardiol*. 2012 Nov 26. pii: S0167-5273(12)01441-6. doi: 10.1016/j.ijcard.2012.10.066. [Epub ahead of print].
3. Daimon M et al. Decreased serum levels of adiponectin are a risk factor for the progression to type 2 diabetes in the Japanese population. *Diabetes Care*. 2003; 26: 2015-2020.
4. Kumada M et al. Association of hypoadiponectinemia with coronary artery disease in men. *Arterioscler Thromb Vasc Biol*. 2003; 23: 35-39.
5. Belalcazar LM et al. Adiponectin and mediation of HDL-cholesterol change with improved lifestyle: The Look AHEAD Study. *J Lipid Res*. 2012; 53: 2726-2733.
6. Belalcazar LM et al. Improving adiponectin levels in individuals with diabetes and obesity: Insights from Look AHEAD. *Diabetes Care*. 2015; 38: 1544-1550.

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