

CHOLESTEROL

Total Cholesterol – Should be evaluated in context of the other components in the fasting lipid panel

Classification of Total Cholesterol

Category	Total Cholesterol Level
Desirable	<200

HDL Cholesterol – “Good Cholesterol.” HDL is an important predictor of heart disease. The higher the HDL the better.

Classification of HDL Cholesterol

Category	HDL Level	Associated Risk	Treatment Recommendations
Low	< 40 mg/dl	Increased Risk	Life Style Modifications
Standard	40-59 mg/dl	Average Risk	Life Style Modifications
High	≥ 60 mg/dl	Decreased Risk	

Lifestyle Modifications – You can raise your HDL by following these lifestyle changes

- **Aerobic Physical Activity** – Top Priority! Physical activity increases HDL. Work with your doctor to develop a plan to increase your physical activity. Walk a minimum of 10,000 steps a day; join a fitness center; or find some other way to follow the surgeon general’s recommendation of 30 minutes of moderate intensity activity on all or most days of the week.
- **Nutrition**
 - * Eat fat sources rich in Omega 3’s (walnuts and cold water fish such as tuna, salmon, sardines, swordfish, mackerel)
 - * Choose fat sources high in monounsaturated fats (peanuts, natural peanut butter, canola oil, olive oil, avocado)
 - * Limit animal fats (butter, cream, fatty cuts of meat, sausage, bacon, whole milk products, ice cream)
 - * Limit hydrogenated fats and partially hydrogenated fats (hydrogenated peanut butter, stick margarine, shortening)
 - * Eliminate trans fats
- **Obtain/ Maintain a Healthy Weight** (Body Mass Index of 25 or less)
- **Do Not Smoke or use Tobacco products**

LDL Cholesterol – “Bad Cholesterol.” High LDL increases your risk of heart disease. The lower the LDL the better. Current cholesterol guidelines recommend matching the intensity of LDL lowering with a person’s 10 year risk of heart disease.

LDL Cholesterol Goals

Risk of Heart Disease	LDL Goal	Treatment Recommendations
Vascular disease already present	< 80 mg/dl	Statin medication & Life Style Modifications
Diabetes	< 100 mg/dl	Statin medication & Life Style Modifications
Risk ≥ 20%	<100 mg/dl	Statin Medication & life Style Modifications
Riske 10-19%	<100 mg/dl	Life Style Modifications, then consider Statin
Risk <10%	<130 mg/dl	Life Style Modifications

Lifestyle Modifications – You can lower your LDL by adopting these lifestyle choices

- **Nutrition**
 - * Eat at least 5 servings of fruits and vegetables a day including legumes (beans and peas)
 - * Choose whole grain cereals, breads, pasta, rice, oatmeal
 - * Choose low fat and nonfat dairy products
 - * Eat lean meats (turkey and chicken breast, lean beef, fish)
 - * Limit Red meat
 - * Limit animal fats (butter, cream, fatty cuts of meat, sausage, bacon, whole milk products, ice cream)
 - * Limit hydrogenated fats and partially hydrogenated fats (hydrogenated peanut butter, stick margarine, shortening)
 - * Eliminate trans fats
- **Aerobic Physical Activity** –Work with your doctor to develop a plan to increase your physical activity. Walk a minimum of 10,000 steps a day; join a fitness center; or find some other way to follow the surgeon general’s recommendation of 30 minutes of moderate intensity activity on all or most days of the week.
- **Obtain/ Maintain a Healthy Weight** (BMI of 25 or less)

Medications – Medications called “statins” can lower your LDL cholesterol and your total cholesterol. They further reduce the risk of heart disease by mechanisms other than just reducing LDL. Occasionally statins can affect your liver. Your doctor will run periodic blood tests to check for this. Statins sometimes cause muscle pains. If you develop unusual muscle pains while on statins, let your doctor know right away.

Triglycerides – Fasting Triglycerides are another form of fat in the blood and are an independent risk factor for heart disease. Many things affect triglycerides including lifestyle, certain diseases (diabetes, kidney disease) and some medications (steroids, estrogens, retinoids, high dose Beta Blockers).

Classification of Fasting Triglycerides

Category	Triglyceride level
Normal	< 150 mg/dl
Elevated	150-199 mg/dl
High	200 - 499 mg/dl
Very High	≥ 500 mg/dl

Lifestyle Modifications – You can lower your triglycerides by following these lifestyle changes.

- **Obtain/ Maintain a Healthy Weight** (BMI of 25 or less). Weight loss reduces Triglycerides
- **Nutrition** – A diet high in simple sugars can increase triglycerides
* Limit concentrated sweets (Sugar, candy, sweetened soda, Jam/ Jelly, syrup, and foods sweetened with significant quantities of sugar)
- **Aerobic Physical Activity** – Physical activity reduces triglycerides. Work with your doctor to develop a plan to increase your physical activity. Walk a minimum of 10,000 steps a day; join a fitness center; or find some other way to follow the surgeon general’s recommendation of 30 minutes of moderate intensity activity on all or most days of the week.
- **Moderation of Alcohol Consumption** – Excess alcohol intake raises triglycerides. Limit Alcohol intake to 2 or less drinks per day for men and 1 or less drinks per day for women. (One “drink” is a shot, 8 oz. wine, or 12 oz. beer).
- **Do Not Smoke or use Tobacco products** – Smoking elevates triglycerides.
- **If you have Diabetes** – reach/ obtain good control of your blood sugar. Poorly controlled diabetes raises triglycerides.

Medications – Your doctor may prescribe a medication to help control your triglycerides in addition to life style modifications.

The Metabolic Syndrome is a group of risk factors that increase the risk of vascular disease. Overweight and obesity are associated with insulin resistance and the metabolic syndrome. However, the presence of abdominal obesity (increased waist circumference) is more closely associated with these risk factors than is the elevated body mass index.

Metabolic Syndrome Factors

Blood Pressure	≥ 130/85
HDL Cholesterol	< 40mg/dl for men or < 50mg/dl for women
Triglycerides	≥ 150 mg/dl
Waist Circumference	< 40” for a man or < 35” for a women
Fasting Glucose	≥ 110 mg/dl

The metabolic syndrome is present when 3 or more of the above factors are present.

Lifestyle Modifications – First line therapy for the metabolic syndrome is weight reduction and increased physical activity. Other recommendations include lifestyle modifications as noted previously to specifically improve each of the metabolic syndrome factors.