PAPPAS HEALTH

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Top Ten Labs to Measure Heart Health (That Your Doctor May be Missing!)

I believe every adult should get regular and comprehensive laboratories. Beginning in your 20s you should get your blood work tested at least yearly and more often as you get older. Blood work is so essential in my practice I call it the RIVER OF LIFE. All of us should know where our biochemistry is taking us, for changes in the lab markers often predate symptoms and diseases by many years.

Nowhere is the benefit of labs more important than in monitoring the health of our arteries and heart. What are the top causes of heart disease?

ROOT CAUSES

Dr. Marc Houston, one of the pioneers of integrative cardiology and an expert in assessing cardiovascular disease recommends we look for the **7 "FAST TRACK TO HEART DISEASE" PATHWAYS:**

- Inflammation Pathway
- Oxidative Stress Pathway
- Vascular Autoimmune Pathway
- Dyslipidemia Pathway
- Blood Pressure Pathway
- Blood Sugar Pathway
- Obesity and Increased Body Fat Pathway

Jonny Bowden, a renowned nutritionist and prolific author describes the root causes of all aging to be linked to **The 4 Horsemen of Aging:**

- Stress
- Inflammation
- Glycation or blood sugar
- Oxidative Stress or free radicals

Family history is also an important factor for heart disease risk.

All of these causes and pathways can be measured and regularly assessed by blood work easily done through the major lab companies and often very well covered by many insurances.

TOP TEN LABS FOR HEART HEALTH

1. **HS-CRP or cardio CRP (High-Sensitivity C-Reactive Protein)**- measures low-grade chronic inflammation. The goal is < 0.5 - 1.

2. Advanced lipid markers that measure:
    i. **LDL-particles** (**APO-B** which measures all the “bad guys” is especially important), **LDL, and LDL & HDL size** (larger is better). APO-B is preferred over LDL as it is a better predictor of heart disease.
    ii. **Triglycerides and HDL and TG/HDL ratio-** Associated with metabolic syndrome. The ratio goal is < 2. Triglycerides goal is < 100 and HDL goal is > 50.

3. **LpA-** known as the “widowmaker”; a dysfunctional LDL that is associated with early heart disease and is largely determined by genetics.

4. **Homocysteine-** an amino acid toxin that causes sticky platelets and makes the arteries less flexible (weak endothelium), usually associated with B vitamin deficiencies such as folate and B12.

5. **Blood glucose function/insulin resistance-** fasting blood glucose (goal is <90), HgbA1C, the average 3-month glucose value (goal is < 5.5), OGTT (glucose and insulin response to sugar drink), insulin resistance index. The “stickiness” of one’s blood has significant effects on heart health and wellness in general. Dementia and cancers are linked to increased levels of these markers.

6. **Omega-3 index-** the percentage of O3 fats in the blood. Most individuals are in need of an Oil Change. The goal is > 5-6% and optimal is > 8-10%, especially for cardiac protection. O6/O3 ratios, the measurement of inflammatory to anti-inflammatory, historically were 2/1 to 3/1 while current ranges in the US are about 10/1 to 20/1.

7. **Cleveland Heart Lab markers of cardiac-specific inflammation** (measures cardiac inflammation, oxidative stress, endothelial function- all linked to early heart disease).

i. **Lp-PLA2-** associated with vascular-specific chronic inflammation, active arterial disease, and possible plaque formation. Can be associated with low-grade infections and periodontal disease.
ii. **MPO-** oxidative stress marker associated with vessel damage, increased risk of plaque. Can be associated with infections and linked to dysfunctional lipids and weakened nitric oxide function.
iii. **OxLDL-** oxidized or damaged LDL. Associated with inflammation and poor diet.
iv. **F2 Isoprostane-** linked to oxidative stress and poor diets.
v. **ADMA-** associated with low nitric oxide levels which are needed to keep endothelium flexible and functioning.
vi. **SDMA-** associated with poor kidney function.

8. **MACR (Microalbumin Creatine Ratio)-** measures microscopic amounts of the protein albumin. Values higher than optimal may signify endothelium dysfunction and a higher risk of heart attack and stroke. The goal is < 7 in females, < 4 in males.

9. **Fibrinogen-** a protein associated with blood clotting and platelet formation that is linked to inflammation and independently associated with cardiovascular disease. More of a generalized rather than specific marker; the goal is < 250.

10. **NT Pro BNP-** associated with heart failure or weakened ventricles and an independent risk factor for cardiovascular events and stroke; values < 125 = happy heart, decreased risk.

BONUS LABS for more heart protection and healthy aging:

- **High Sensitivity Troponin T and I-** associated with the underlying burden of coronary atherosclerosis and more rapid progression of heart disease.
- **Ferritin-** iron storage. Too much equates to a lot of internal rusting and oxidative stress, linked to liver and heart disease.
- **Vitamin D-** low levels thought to be < 30 are problematic. Need to have plenty of safe sun exposure to “charge the battery,” or take adequate supplementation.
- **Glutathione-** perhaps the most important antioxidant, this compound affects detoxification, cell health and aging, immune system, brain health, and cardiac function.
- **Cortisol, DHEA-S, and Pregnenolone-** these markers of adrenals and stress are linked to chronic stress, poor aging, heart disease, and poor brain health.

- **APO E-** genetic test associated with increased risk of heart disease and dementia.

EXTRA CREDIT:

- **Blood Pressure-** target goal is < 120/80; white coat hypertension is not benign- it can be linked to cardiovascular disease, as well. Difficult-to-control BP can be associated with sleep apnea.

Actively seek to know what these markers are doing! They impact not only heart health but brain function and aging. Be a student in the major, not minor labs. Don't settle for basic lab profiles run by practitioners with no knowledge or time to take a deep dive into your individual and unique profile. Your health is too important to leave solely to the dysfunctional health care system, better known as a "Disease Care System." Everyone should seek to be a citizen-scientist and search for **ROOT CAUSES**. Thoroughly and aggressively screen, monitor, and treat through lifestyle changes, appropriate natural supplements, and effective medicines when necessary.

Please reach out to us to help you get these vital tests or let us know if you have any questions. We are here to help partner with you to become the best version of yourself!

Yours in health-

Dr. Sam Pappas and the Pappas Health team