



Research Spotlight: The Link Between Omega Fatty Acids & Cardiovascular Health

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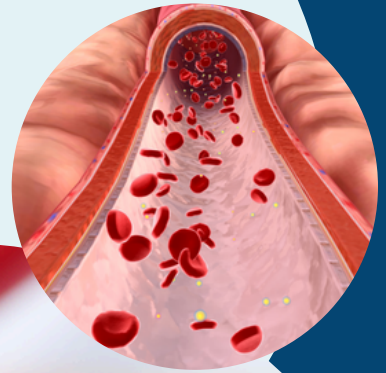


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With modern rates of cardiovascular disease rising, prioritizing heart health is imperative for disease prevention and longevity.¹

Heart health is influenced by a complex interplay of biological and environmental factors. Among these, fatty acids stand out for their direct impact on major cardiovascular mechanisms like cell membrane fluidity and signaling, arrhythmia prevention, and inflammation.²

While there are various kinds of fats, polyunsaturated fatty acids (PUFAs), including omega-3 and omega-6, significantly influence physiological functions and potential to modulate cardiovascular risk factors.

This article explores the nuanced impact of omega-3 and omega-6 fatty acids on heart health through the latest Vibrant Wellness research, unraveling the ways in which these essential substances contribute to cardiovascular risk or protection.

The Role of Fatty Acids in Cardiovascular Health

Fatty acids, the building blocks of fats, play pivotal roles in the body. They are not only major sources of energy but also regulate critical physiological processes.

They're categorized into saturated, monounsaturated, polyunsaturated, and trans fats, each with distinct effects on health.

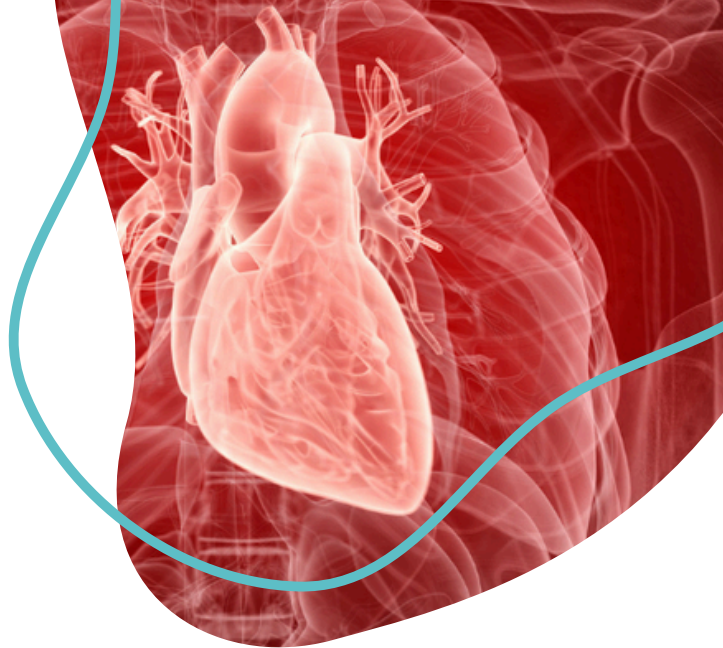
Polyunsaturated fatty acids (PUFAs), especially omega-3 fatty acids like docosahexaenoic acid (DHA), eicosapentaenoic acid (EPA), and docosapentaenoic acid (DPA), have been spotlighted for their potential to reduce the risk of cardiovascular diseases.

These benefits are thought to arise from their ability to modulate lipid profiles and inflammatory processes, crucial determinants of cardiovascular health.²

The body of research exploring the link between fatty acids and cardiovascular health is vast yet complex, with findings that often seem contradictory or inconclusive.

Thus, further investigation is needed into how these fatty acids interact with the human body and influence heart health.

**Relationship of Omega Fatty Acids
to Lipid and Inflammatory Markers:**



Study Overview & Methodology

Relationship of Omega Fatty Acids to Lipid and Inflammatory Markers is a 2022 study published in The Lancet.³

The goal of this study was to determine if there is a connection between levels of fatty acids and various inflammatory and lipid biomarkers—key indicators of cardiovascular health.

The study analyzed data from 3,942 individuals who visited Vibrant America Clinical Lab for routine health check-ups based on their physicians' recommendations.

The study looked at a total of 16 biomarkers, divided into lipids and inflammatory markers.

Lipid Markers

Nine biomarkers fell under this category, including:

1. Total Cholesterol
2. HDL Direct (High-Density Lipoprotein Direct)
3. Triglycerides
4. LDLCAL (Low-Density Lipoprotein Calculated)
5. LDL Direct (Low-Density Lipoprotein Direct)
6. APOA (Apolipoprotein A)
7. APOB (Apolipoprotein B)
8. APOBAR (Apolipoprotein B/A Ratio)
9. SDLDL (Small Dense Low-Density Lipoprotein)

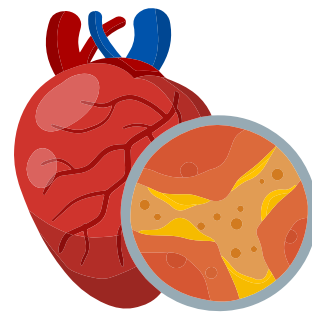


These markers are integral in assessing the lipid profile, offering insights into the levels of various types of cholesterol and lipoproteins in the blood, each playing a distinct role in cardiovascular risk.

Inflammatory Markers

The study also focused on seven inflammatory markers, including:

1. hs-CRP (High-Sensitivity C-Reactive Protein)
2. Homocysteine
3. ox-LDL (Oxidized Low-Density Lipoprotein)
4. MPO (Myeloperoxidase)
5. PLAC (Placental Growth Factor)
6. LPA (Lipoprotein(a))
7. BNPNT (B-Type Natriuretic Peptide N-Terminal)



Inflammation is directly linked to the pathogenesis of cardiovascular diseases, making these markers critical in understanding how dietary fatty acids influence heart health beyond lipid metabolism.

Methodology

Researchers determined the composition of omega fatty acids in red blood cell (RBC) phospholipids, a reflection of long-term dietary intake, using Gas Chromatography-Mass Spectrometry (GC-MS).

This highly sensitive technique allowed for the precise quantification of omega-3 and omega-6 fatty acids in the participant samples, providing a reliable assessment of cellular fatty acid uptake and metabolism.



Further, the study utilized Pearson's correlation analysis to identify and quantify the relationships between the levels of different fatty acids and the selected health markers.

This statistical method is instrumental in understanding the degree to which variations in fatty acid composition are associated with changes in lipid and inflammatory markers.

Study Results

Positive Correlations with Omega-3 Fatty Acids

A standout observation from the study is the significant positive correlation between omega-3 fatty acids—specifically DHA (docosahexaenoic acid), EPA (eicosapentaenoic acid), Total omega-3, the Omega-3 index, and beneficial lipid markers.

These beneficial lipid markers include increased levels of Total Cholesterol, HDL Direct (high-density lipoprotein, or "good" cholesterol), ApoA, and more favorable LDL calculation profiles.

This positive relationship demonstrates the role of omega-3 fatty acids in supporting a healthy lipid profile, an essential factor in reducing cardiovascular disease risk.

Moreover, these omega-3 fatty acids demonstrated a notable negative correlation with triglyceride levels. High triglyceride levels are a known risk factor for cardiovascular disease, and their reduction is an important goal in managing heart health.

The Negative Impacts of Omega-6 Fatty Acids

Contrasting with the beneficial impacts of omega-3 fatty acids, the study revealed that AA (arachidonic acid) and Total omega-6 fatty acids have a detrimental effect on lipid profiles.

These fatty acids showed a significant negative correlation with beneficial lipid markers and an association with increased levels of triglycerides.

This suggests that while omega-6 fatty acids are essential for health, their balance with omega-3 fatty acids is crucial in maintaining optimal cardiovascular health.

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Further, AA and Total omega-6 were associated with elevated levels of inflammatory markers, including hs-CRP (high-sensitivity C-reactive protein) and Homocysteine.

Inflammation is a key driver of atherosclerosis and other cardiovascular diseases, indicating that an imbalance favoring excessive omega-6 fatty acid intake could exacerbate cardiovascular disease risk through inflammatory pathways.

The Balanced Effects of Omega-3 versus Omega-6 Fatty Acids

The study's findings highlight a critical balance between omega-3 and omega-6 fatty acids in influencing heart health. Omega-3 fatty acids are associated with improved lipid profiles and reduced inflammatory markers, while too many omega-6 fatty acids, relative to omega-3s, may lead to adverse effects on lipid profiles and an increase in inflammation.

This demonstrates the need for a balanced dietary intake of these essential fats that takes ratio into account as well as quantity.

To help your patients achieve optimal heart health, learn how to develop a complete cardiac health food plan **here**:



Clinical Implications

This study reveals valuable insights into the role of fatty acids in cardiovascular health.

By delineating the distinct roles of omega-3 and omega-6 fatty acids in influencing cardiac health markers, the study can help guide personalized nutrition plans to improve cardiac health.

Integrating Omega-3 Fatty Acids for Heart Health

A pivotal takeaway from the study is the cardioprotective role of omega-3 fatty acids. The results reinforce the need to prioritize the intake of omega-3-rich foods and supplements in cardiovascular health plans.

Incorporating omega-3-rich foods, such as fatty fish (salmon, mackerel, sardines), flaxseeds, walnuts, and fortified products, into the diet or recommending personalized high-quality supplements for your patients can be an effective approach to mitigating cardiovascular risk factors.

You can ensure your patients receive adequate omega-3s and other essential nutrients with personalized cellular nutrients from the **NutriProZ Longevity Program**.

This innovative system combines advanced cellular and genetic testing with a thorough lifestyle assessment, resulting in tailored, therapeutic supplements. Each compounded, personalized dose can replace up to 70 different supplements.

Scan to see Vibrant's NutriPro Test:



The Significance of Direct LDL Measurement

Another critical insight from the study is the importance of measuring LDL cholesterol directly, especially in the context of elevated omega-3 fatty acid levels.

The study notes the relevance of direct LDL measurement over calculation-based approaches, such as the Friedewald equation, which may not accurately reflect LDL levels in individuals with significant omega-3 fatty acid intake.

This finding highlights the need to consider direct LDL cholesterol testing to obtain a more accurate assessment of cardiovascular risk, particularly in patients adhering to omega-3-enriched diets or supplementation regimes.

Precision Testing for Cardiovascular Health

Assessing Cardio Genetics

To assess genetic predisposition for developing cardiovascular disease, you can utilize the CardiaX panel.

This test includes markers for genes directly linked to cardiovascular conditions such as atherosclerosis, abnormal cholesterol production, hypertension, stroke, and even heart attack.

Using the CardiaX panel, you can help your patients detect heart disease risk and create effective treatment plans suited to their unique genetics.

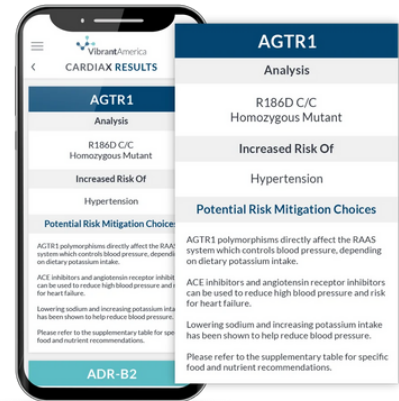
Assessing Cardiac Health

To assess your patient's overall cardiac health, you can test with the **Cardiac Health Panel**.

This panel assesses the presence and risk of cardiovascular disease and related diseases, including hyperlipoproteinemia, atherosclerosis, hepatic, and thyroid disease.

The Cardiac Health panel tests for sixteen different cardiac health markers, including lipids, apolipoproteins, lipoproteins, inflammatory markers, and myocardial stress.

The panel enables early detection of heart disease and associated conditions, allowing for a comprehensive view of heart health and more effective treatment plans.



Micronutrient Testing

The intricate balance of micronutrients like omega-3 and omega-6 fatty acids is essential in maintaining optimal cardiac health.

To avoid your patients over- or under-dosing, it's important to understand their exact micronutrient needs through precision testing, such as the **Micronutrient panel**.

The Micronutrient panel directly measures the intra- and extracellular nutrient status of common vitamins, minerals, co-factors, amino acids, essential fatty acids, and more.

With precise measurements for essential nutrients, you can create personalized nutrition and supplementation plans for your patients, ensuring they get the optimal amount of nutrients for cardiac and overall health.



Vibrant's Cardiac Health Panel



Vibrant's Micronutrient Panel

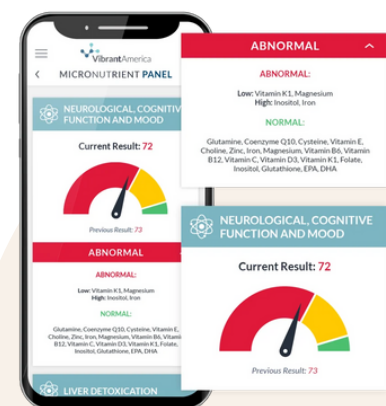
Cardiac Biomarkers, Nutrition, & Longevity

Dietary fatty acids play a pivotal role in cardiovascular health, with the power to prevent disease pathology or induce it.

Our research findings advocate for informed dietary choices to mitigate cardiovascular risk factors, guiding diagnostic and nutrition strategies to achieve optimal health and longevity.

The study results also emphasize the need for balance in nutrition and supplementation.

By integrating these insights into your practice, you can more effectively guide your patients toward improved heart health, leveraging personalized nutrition and precision diagnostics as powerful tools in the fight against one of the world's most prominent diseases.



References:

1. https://www.who.int/health-topics/cardiovascular-diseases#tab=tab_1
2. <https://www.sciencedirect.com/science/article/pii/S0914508715002300>
3. https://papers.ssrn.com/sol3/papers.cfm?abstract_id=4273929

Be a Healthcare Pioneer

Enhance patient care with state-of-the-art functional lab testing for accurate diagnoses and targeted treatment plans.

Get Started



Regulatory Statement:

The general wellness test intended uses relate to sustaining or offering general improvement to functions associated with a general state of health while making reference to diseases or conditions. This test has been laboratory developed and its performance characteristics determined by Vibrant America LLC and Vibrant Genomics, a CLIA-certified and CAP-accredited laboratory performing the test. The lab tests referenced have not been cleared or approved by the U.S. Food and Drug Administration (FDA). Although FDA does not currently clear or approve laboratory-developed tests in the U.S., certification of the laboratory is required under CLIA to ensure the quality and validity of the tests.