



**Rocky Mountain Analytical**  
*Changing lives, one test at a time*

# Fatty Acid Profile

## Information for Patients

### About Fatty Acids

Fatty acids are part of cell membranes and play a critical role in helping cells talk to one another. Since we have trillions of cells in our bodies, it's not surprising that imbalances in fatty acid levels can have wide-reaching effects. In other words, having the right fatty acids is an important factor in maintaining good health.

#### Good Fatty Acids

Essential fatty acids are the ultimate in 'good' fatty acids. They are called essential, because the body doesn't make them so we have to get them from our diet. Essential fatty acids include both omega-3 and omega-6, but deficiencies of omega-3 fatty acids are more common than omega-6. Mono-unsaturated fatty acids like olive oil are also considered 'good' fats.

#### Bad Fatty Acids

Certain trans fatty acids (TFAs or trans fats) and saturated fatty acids have been associated with increased risk of heart disease.

#### Conditions

**Heart Disease:** Some of the best evidence regarding the benefits of omega-3 fatty acids is for the prevention and treatment of heart disease. Optimal results for the Omega-3 Whole Blood Score, Omega-3 Index and the ratio of AA to EPA have been shown to either reduce risk of heart disease, or reduce the risk of a second heart attack in people who have already experienced heart attacks.

**Aging:** A high Omega-3 Index is associated with improved markers of aging. In other words, having the right levels of omega-3's may help keep you young!

**Cancers:** The ratio of AA to EPA impacts a number of different cancers. In particular, lowering a high ratio of AA to EPA has been shown to reduce the risk of colorectal cancer, lung cancer and breast cancer.

**Diabetes:** A high ratio of AA to EPA is associated with a higher incidence of diabetes.

**Skin Conditions:** Research suggests that taking EPA daily may reduce skin inflammation. Study participants saw significant improvement in scaly skin, itchiness, and severity of symptoms by taking 1.8 grams of EPA per day.

**Depression:** A high AA to EPA ratio and low levels of EPA in red blood cells have been associated with increased severity of depression.

**Rheumatoid Arthritis:** Lowering the AA to EPA ratio has been shown to improve symptoms of rheumatoid arthritis.

#### Essential fatty acids (PUFA)

##### Omega-3

*The major omega-3 fatty acids are linolenic acid (LNA) found in flax and other seeds, plus eicosapentaenoic and docosapentaenoic acids (EPA and DHA) found in fish oils. The Omega-3 Index and the Omega-3 whole blood score are well-researched measures of omega-3 fatty acid content in red blood cells.*

##### Omega-6

*Although considered essential fatty acids, omega-6 is rarely lacking in the diet. Omega-6 fatty acids are widely present in grains, grain-fed animal meats, borage, evening primrose oil, and black currant oil. An excess of the omega-6 fatty acid AA over EPA promotes inflammation and is associated with increased disease risk and severity.*

#### Mono-unsaturated fatty acids

##### Omega-9

*Olive oil contains oleic acid, which is the most commonly recommended omega-9 fatty acid. Canola and safflower oil also contain oleic acid. Mono-unsaturated fatty acids are the best oils to use in cooking.*

#### Saturated fatty acids (SFA)

*Saturated fatty acids come from meat, dairy, cocoa butter and palm oil, and are usually solid or semi-solid at room temperature. Some saturated fats are associated with increased risk for heart disease.*

#### Trans-fatty acids (TFA)

*Trans-fatty acids are fatty acids that have been modified to improve the shelf life of packaged foods. Trans fatty acids are a proven risk factor for heart disease.*

### Why Test Fatty Acids?

**Question:** If almost everyone needs omega-3 fatty acids, why not just supplement with omega-3's and forget about getting a test?

**Answer:** It's all about balance. To make sure you are getting the maximum benefit from omega-3 fatty acid supplementation, you need to know that you're taking the right amount, and you need to know whether you're eating too many of the 'bad' fatty acids like trans-fats and saturated fats. Testing helps your health care professional figure out whether you are getting the optimal amount of omega-3 fatty acids for your health.

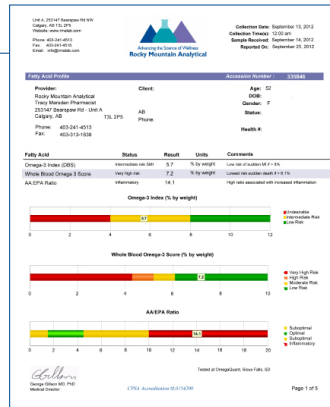
## Test Results

### What do test results mean?

Rocky Mountain Analytical offers the Fatty Acid Profile as a way to determine whether you have the optimal levels of omega-3 fatty acids to effectively reduce your risk of developing disease.

### The Fatty Acid Profile includes the following:

- **Omega-3 Index** gives the percentage of EPA and DHA present relative to the total fatty acid content of red blood cells. The right amount of DHA and EPA is important for optimal cell membrane function, and optimal health.
- **Omega-3 Whole Blood Score** reports the percentage of EPA, DPA and DHA relative to the total fatty acid content of whole blood. Research shows those with the lowest Omega-3 Whole Blood Score have the greatest risk of sudden death from heart attack.
- **AA to EPA Ratio** results are reported as a number, which represents how much AA relative to EPA there is in the blood. The AA to EPA ratio is a good indicator of inflammation in the body, and is also an excellent tool for determining whether omega-3 fatty acids are being adequately supplemented.
- **Mono-unsaturated fatty acids** are also good fats. Research shows that replacing saturated fats with mono-unsaturated fats is better for your heart.
- **Saturated fatty acids** are widely consumed in meat, dairy, palm oil and cocoa butter. The World Health Organization recommends no more than 10 percent of your daily calorie intake should be consumed as saturated fatty acids.
- **Trans fatty acids** are known to be bad for health (although some naturally occurring trans fatty acids are okay). The World Health Organization recommends less than 1% of calories consumed should be as trans fatty acids. Replacing trans fats with omega-3 or mono-unsaturated fatty acids has been shown to improve health. Trans fats are banned in Denmark, and other countries are expected to follow suit.



## Why Test?

Good health has a lot to do with maintaining balance: the right balance of work and play, the right balance of nutrients in the diet, and the right balance of fatty acids.

Fatty acid imbalance may be a result of illness, or may produce symptoms and biochemical changes that contribute to illness.

Rocky Mountain Analytical is committed to offering laboratory tests that identify imbalances and other conditions - so they can be corrected before disease develops!

## About Us

Rocky Mountain Analytical was founded in 2002 with a mission to offer tests that focus on early identification and prevention of disease.

Rocky Mountain Analytical is an accredited medical laboratory located in Calgary, Alberta. Accreditation means tests performed by Rocky Mountain Analytical are regularly reviewed for quality, accuracy and reproducibility by the College of Physicians & Surgeons of Alberta.

Ask your healthcare professional whether a test is right for you.

## Food Sources of Omega-3's

- **Flaxseed, pumpkin seed, chia seed and hemp seed** oils are great sources of omega-3 fatty acids in a vegetarian/vegan form. Vegetarian sources of omega-3 fatty acids are high in alpha-linolenic acid (AA), an essential omega-3 fatty acid that must be converted into EPA and DHA and requires specific vitamins and minerals to do so. Unlike vegetable sources of omega-3 fatty acids, fish oils are naturally high in the omega-3 fatty acids EPA and DHA, which is why they are often recommended for supplementation.
- **Fish** high in omega-3 fatty acids are cold water fish like: salmon, sardines, trout, mackerel, herring, kippers and eel. Including these fish in your diet 2 or 3 times a week, especially in place of red meat, can help to protect against cardiovascular disease.
- **Fish oil supplements** on a daily basis are another great way to add omega-3's to your diet. Ensuring quality and purity is important when choosing a brand, whether you are taking a liquid or a capsule. Look for fish oils that are IFOS certified (International Fish Oil Standard) to ensure the oil is pesticide and mercury-free.

Information is for educational purposes only. It is not meant as medical advice and any treatment decisions should be made with the knowledge or consent of your healthcare professional.



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