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PERSONALIZED FITNESS AND WELLNESS FOR MEN 50+



Cholesterol: The Controversy and Facts

Introduction

Much has been written about cholesterol and its link to heart disease. Most people realize that high blood LDL cholesterol levels are a significant risk factor, along with high blood pressure, being overweight, a sedentary life-style, and smoking, for the development of heart disease. Statistics Canada estimates that 27% of adults aged 20-39 and 43% of adults aged 40-59 have unhealthy LDL cholesterol levels (3.4 mmol/L or higher). A recent study revealed that having elevated cholesterol levels for 1 to 10 years almost doubles the risk of heart disease.

Unfortunately, there has been much confusion/controversy about the best way to control your cholesterol levels or whether you have any control over your cholesterol levels at all. Effective cholesterol lowering drugs, statins, have been developed and are quite effective, but what, if anything, can be done to lower cholesterol levels before drugs are necessary? This newsletter will explore what the research suggest you do/don't do. You may be surprised at what they say.

Exercise and Cholesterol

There is no controversy here; research has been well established that exercise lowers blood cholesterol levels.

Three mechanisms for Exercise to lower Blood Cholesterol Levels;

1. Exercise increases caloric expenditure and metabolic rate to lower weight. Overweight individuals have higher levels of LDL "Bad" cholesterol.
2. Exercise stimulates enzymes that help move LDL from the blood to the liver where they are converted to bile for digestion or are directly excreted from the body.
3. Exercise increases the size of the protein particles (lipoproteins) that carry cholesterol through the blood. Because exercise increases the size of the particles, they become too big to squeeze into the lining of the heart and blood vessels.

How Much exercise is Needed;

Any exercise is better than no exercise but a minimum of 30 minutes per day of moderate to vigorous exercise, such as walking, jogging, biking, or gardening is necessary. Recent studies suggest that more intense exercise is actually better than moderate exercise for lowering cholesterol.

Did You Know

1. Cholesterol is a modified steroid lipid molecule and is an essential structural component of animal cell membranes and is necessary for the biosynthesis of steroid hormones, bile acids, vitamin D. and brain function.
2. All foods containing animal fat contain cholesterol to varying amounts.
3. Major dietary sources of cholesterol include cheese, egg yolks, beef, pork, poultry, fish, and shrimp.
4. From a dietary perspective, cholesterol is not found in significant amounts in plant sources.
5. Cholesterol in the blood is carried by two types of lipoprotein:
 1. **Low-density lipoprotein (LDL)**
'bad' cholesterol.

High levels of LDL lead to a build-up of cholesterol in the arteries and the development of atherosclerosis and this increases the risk of heart attacks.

2. **High-density lipoprotein (HDL)**
'good' cholesterol.

HDL carries cholesterol to the liver for removal from the body.

6. LDL and HDL cholesterol balances are mostly genetically determined, but can be changed by exercise. There is scientific controversy as to whether diet can influence blood cholesterol levels.

Control Your Diet to Control Your Cholesterol ??

Traditional School of Thought

What to Eat

1. **Fatty fish** : Salmon, trout, mackerel, sardines, herring, Albacore tuna, halibut. These are full of omega-3 fatty acids (DHA and EPA) that lower blood fats.

Recommendation : 6—12 ounces each week. If you don't like fish, use supplement fish oil capsules providing 500 mg of DHA and EPA combined.

2. **Oatmeal**: excellent source of LDL lowering soluble fibre. Soluble fiber is also found in such foods as kidney beans, apples, pears, barley and prunes.

Recommendation: Five to 10 grams or more of soluble fiber a day decreases your total and LDL cholesterol. Eating 1 1/2 cups of cooked oatmeal provides 6 grams of fiber. If you add fruit, such as bananas, you'll add about 4 more grams of fiber. 1 cup of psyllium enriched breakfast cereal (Bran Buds) equals 3 grams of fibre.

3. **Extra– Virgin Olive Oil (best cooking oil)**: very high in monounsaturated fat and anti-oxidants that lowers LDL when substituted for saturated (butter) and trans fats (margarine).

Recommendation: 2 tablespoons (23 grams). Add olive oil to your diet, by using to saute vegetables, adding it to a marinade or mix it with vinegar as a salad dressing. You can also use olive oil as a substitute for butter when basting meat or having bread.

4. **Walnuts**: Very high in alpha-linolenic acid (ALA) which is an omega-3 fatty acid. Almonds, hazelnuts, peanuts, pecans, some pine nuts and pistachio nuts are substitute nuts. Make sure the nuts you eat aren't salted or coated with sugar.

Recommendation: 1 serving = 7 full walnuts

What to Eat a Lot Less Of

(This is Where the Controversy Starts)



1. **Saturated and Trans fats**: A steady intake of saturated and trans fats can raise LDL cholesterol and lower HDL levels.

Recommendation: Choose lean cuts of meat (sirloin, tenderloin and flank steak), skinless poultry breast and low fat dairy products (1 % milk fat or less). Read labels and choose foods with zero trans fat. Foods that have a daily value (DV) of less than 10 % for saturated plus trans fats are considered low in these fats.

2. **Dietary Cholesterol** : Foods high in cholesterol include liver and other organ meats, egg yolks and full-fat dairy products.

Recommendations : Limit your intake of cholesterol from food to less than 300 mg per day. If your LDL is high, you have heart disease or you're taking a cholesterol-lowering medication, it's best to consume less than 200 mg of cholesterol per day.

3. **Added Sugars** : Excess sugar lowers good (HDL), cholesterol, raises blood triglycerides and can lead to weight gain which leads to higher bad (LDL) cholesterol.

Recommendations: Limit added sugar intake to 5 % of daily calories (about 100 calories / 25g of sugar) for women and 150 calories (37g) for men. Avoid sugar-sweetened beverages and limit your intake of cakes, cookies, pastries and candy. Read ingredients lists on packaged food to choose products lower in added sugar.

New School of Thought **(March 2015)**

In a press release in March, 2015 The American Dietary Guidelines Advisory Committee (DGAC) stated that the research has shown that "cholesterol is not considered a nutrient of concern for overconsumption." This new position is expected to change government and society's attitudes when it comes to dietary cholesterol recommendations. It is a significant reversal of the cholesterol limitations that have been widely circulated since the 1960s.

The advisory committee states that research has never established any clear relationship between the consumption of dietary cholesterol and the risk of higher blood cholesterol levels. Part of the reason for this, they state, may be the fact that it is estimated that only 20 percent of your blood cholesterol levels come from your diet and the rest of the cholesterol in your body is produced by your liver, which is used for the biosynthesis of steroid hormones, bile acids, and vitamin D. Cholesterol also plays an essential role in your brain, which contains about 25 percent of the cholesterol in your body. Cholesterol is critical for synapse formation, i.e. the connections between your neurons, which allow you to think, learn new things, and form memories.

Interestingly, a senior research scientist at the Massachusetts Institute of Technology (MIT), believes it's difficult to get "too much" cholesterol in your diet, particularly in the standard North American diet and in fact he feels most may be getting too little, and that can cause serious health problems.

Conclusion

Eat red meat, eggs and dairy products to your heart's content.

It should be noted that the committee also recommended that Americans eat more fruits and vegetables and less sugary drinks.

The Real Danger : Oxidized Cholesterol (cooking oils) and Sugar Consumption

Oxidized Cholesterol

Oxidized cholesterol is formed when polyunsaturated vegetable oils (such as soybean, corn, and sunflower oils) are heated. A primary source for oxidized cholesterol is fried foods. This *oxidized* cholesterol (not dietary cholesterol in and of itself) causes increased thromboxane formation, a factor that clots your blood and hardens your arteries (atherosclerosis) and this increases the risk of heart attacks.

Key Point;

What matters is whether the cholesterol and fat residing in those LDL particles, not the LDL particles themselves, have been oxidized.

Summary (New Thinking)

Cholesterol has nothing to do with heart disease, except if it's oxidized, So while naturally cholesterol-rich foods, red meats, eggs and dairy products, are good for you, if those foods are fried or heated to high temperatures, the cholesterol may become oxidize and this form of cholesterol should be avoided

The Stability (Oxidation) of Cooking Oils

When you're cooking at a high heat, you want to use oils that are stable and don't oxidize easily. When oils undergo oxidation, they react with oxygen to form free radicals which have been linked to cancer and heart disease.

The most important factor in determining an oil's resistance to oxidation both at high and low heat, is the relative degree of saturation of the fatty acids in it.

Saturated Fats - have only single bonds in the fatty acid molecules, are solid at room temperature and are found mainly in animal foods -- meat and dairy products such as fatty beef, lamb, pork, chicken with skin, whole milk, cream, butter, cheese and ice cream.

Monounsaturated fats - have one double bond and are liquid at room temperature but become solid at refrigeration temperatures. Examples of foods high in mono unsaturated fats include plant-based liquid oils such as:

- olive oil,
- canola oil,
- peanut oil,

Other sources include avocados, peanut butter, and many nuts and seeds.

Polyunsaturated fats - have two or more double bonds and it is these double bonds that are chemically reactive and sensitive to heat. These fats are liquid at both room and refrigeration temperature. Examples are; safflower oil, sesame oil, corn oil, soybean oil and sunflower oil.

Cooking Oil Summary

Saturated fats and monounsaturated fats are pretty resistant to heating, but oils that are high in polyunsaturated fats should be avoided for cooking. Therefore replace harmful vegetable oils and synthetic trans fats with healthy fats, such as olive oil, butter, and coconut oil when cooking.

Sugar Consumption

The majority of your cholesterol (80%) is produced by your liver, which is influenced by your insulin levels. Therefore, **if you optimize your insulin level, you will tend to automatically optimize your cholesterol.** High dietary sugar intake spikes our blood sugar and insulin levels which results in the sugars being taken to the liver where it is used for fuel, or converted to fat, some of which is stored and increases your weight or re-enters the blood and raises the level of small-dense LDL.

Summary

Though a diet high in dietary cholesterol has not been shown to increase blood cholesterol levels, oxidation of cholesterol and high sugar intake can result in higher blood LDL levels and these should be avoided.

