White Paper on Dietary Fats

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Women and Heart Disease

Heart disease is the number one killer of all Americans. More women die from cardiovascular disease than all cancers combined. For women, the risk of heart disease often goes unchecked, partially due to milder symptoms than those observed in men. Some warning signs of heart disease and heart attack most frequently reported by women are sleeplessness, sudden onset of severe weakness and shortness of breath. These symptoms can be mistaken for anxiety, menopause or a bad case of the flu. These nebulous symptoms contribute to the diagnostic delays experienced by women and result in worse outcomes with a rising death rate. Epidemiological studies all point to the critical need for a better cardiovascular care model for women. This is the bad news.

The good news is that research has shown that lifestyle changes can help prevent or reduce the risk of heart diseases from occurring. One of the main lifestyle changes recommended is a change in our diets, mainly in the type and amount of fats we eat. In the past few years the role of dietary fat in heart disease has never been examined as closely as it is today. With ongoing research on the role of our diet and its affect on heart disease the public is being bombarded with varying views as to the role of diet. As a result, individuals are often confused as to the best diet and the role of fats in their diet for the prevention of heart disease.

The Role of Fats

Fats are an important nutrient for the body and are essential for normal growth and development. Fats serve as a great source of energy. Up to two thirds of the total energy utilized by our cells may be supplied by fats. Each gram of fat supplies 9 calories, more then twice the amount of energy supplied by each gram of carbohydrate or protein. Fat spares protein for tissue synthesis that might otherwise be used for energy. Fat serves to hold the body organs and nerves in position and to protect them against traumatic injury and shock. The fat below the skin surface serves as a layer of insulation, preserving body heat and maintaining body temperature. Fats aid in transport and absorption of the fat-soluble vitamins.

Fats also depress gastric secretions and slow emptying time of the stomach. And as everyone knows fats make food taste good. Fats add to the palatability of the diet and produce a feeling of satiety after a meal. Fatty acids are what make up fat and there are 24 common fatty acids. Essential fatty acids are fats that the body can not make on its own but are essential for good health. There are two classes of essential fatty acids that must be provided by the diet, these are omega-6 and omega-3.

While fats are necessary for life, excessive intake of certain fats has been linked to a number of diseases. The many roles of fats and effects of fats, along with the other nutrients, carbohydrates, proteins, vitamins and minerals on our health are still being discovered and researched. Hence the recommendations for the different nutrients may need to be clarified from time to time. As to fats there is compelling evidence that fats play a major role in the development of heart disease. Recently controversy has arisen around just how bad are fats for heart disease, which fats need to be watched and also the role a low carbohydrate-high protein-high fat diet may play in heart disease. The answers will most likely be complex in regards to the role between fats and the different nutrients and heart disease.

Heart Disease

In examining the role of nutrients and heart disease researchers are looking at the effects the different nutrients have on our cholesterol and triglyceride levels in our blood stream. The role cholesterol and other nutrients in our diet have on the formation of plaque and the relationship of inflammation of the arteries in the development of heart disease is being studied. In addition to the role the different nutrients play in heart disease, we need to be aware of other conditions, especially diabetes, that increase the risk of heart disease. Women with diabetes have a seven times greater risk of heart disease then women with out diabetes and a greater risk than with men. Heart disease in women with diabetes is more severe than in men with diabetes. Along with looking at the role that nutrients play in preventing heart disease alone, we need to look at the role nutrients play in preventing diabetes in order to reduce the incidence of heart disease in women with diabetes. As stated earlier there are no simple answers.

Dietary Fats and their Role in Heart Disease

In terms of the role dietary fats have on cholesterol, we are looking at the role they mainly have on the HDL (high density lipoprotein) and LDL (low density lipoprotein) cholesterol blood levels. The are four main types of fat; saturated, trans-, monounsaturated and polyunsaturated fats. Saturated, trans-, monounsaturated and polyunsaturated fats vary in their chemical make-up. It is this variation in their chemical make up that seems to have an effect on the HDL and LDL cholesterol in our blood stream. Saturated, monounsaturated, polyunsaturated and a small amount of trans-fats occur naturally in our foods. Most of the trans-fats we eat though are formed in the development of many of our processed foods. The saturated fats we eat along with the trans-fats we create and eat have been associated with increasing the LDL cholesterol. LDL cholesterol has been linked to an increase in heart disease and deaths from heart attacks. The LDL cholesterol has been shown to play a role in the deposition of plaque in our arteries and veins that supply blood and nutrients to every part of our body. If the plaque becomes excessive and the artery becomes blocked the result will be a heart attack. If the plaque comes loose the result could be a stroke. Foods that contain polyunsaturated and monounsaturated fats have been show to decrease the LDL -cholesterol in our bodies, hence reducing the plaque build up and our risk for both a heart attack and a stroke. The unique roles of polyunsaturated fats and monounsaturated fats and how they lower LDL-cholesterol is still being researched. Interestingly, fats, especially saturated fats are becoming more and more recognized as contributing to insulin resistance, the first step in the development of diabetes and polyunsaturated fats are being studied for their role in preventing insulin resistance.

While LDL cholesterol has been shown to increase the risk for heart disease, research has shown increased HDL levels increase the protective benefit against heart disease from LDL cholesterol. This is because the HDL–cholesterol, unlike the plaque causing LDL cholesterol, has been shown to help keep our arteries and veins clear of plaque. HDL levels are usually low in individuals with diabetes or metabolic syndrome (the condition of insulin resistance). The risk for the development of atherocslerosis appears to be increased when the arteries become inflamed. The roles of the fats in the cause of inflammation along with antioxidants are still being studied. While both omega-3 and omega-6 fatty acids are essential fatty acids, omega-3 fatty acid has been tied to a decrease in inflammation of the arteries and omega-6 fatty acids have been suggested to increase artery inflammation. The role and relationship between omega-3 and omega -6 fatty acids is still unclear, but increasing the omega-3 fatty acid in the

diet is recommended to decrease the risk of inflammation and help protect against heart disease.

Dietary Controversy

To add to the confusion over heart health, there is now popular enthusiasm for a diet that is high protein, high fat, and low carbohydrate. This diet has been recommended for weight loss, control of diabetes and has been touted as beneficial in the control of cholesterol levels and the prevention of heart disease. Very little research has been done on this diet and its effects on heart disease. Some of the thoughts are that the body needs enough energy to stay alive. On low carbohydrate diets, almost all of the energy needed is coming from the fats and protein. This energy deficiency leads to a decrease in LDL cholesterol because these fats are being consumed as energy to run the body. We may see a change in this phenomenon as more and more traditionally high carbohydrate foods are being made with fats and protein instead of carbohydrates, resulting in an increase in total calories and less of an energy deficient in individuals consuming a high protein-high fat diet. This type of diet leads to weight loss though decreasing the total calorie intake. In terms of diabetes, again the decrease in insulin resistance and blood glucose levels comes from a decrease in the carbohydrates and the decrease in total calorie intake. Clearly more research is needed in this area.

In Summary

We know that healthy eating is essential in the prevention of many different diseases. The contribution that diet has in preventing heart disease and diabetes, a disease that carries a higher risk for heart disease, is one of much research and controversy as new information becomes available. Many issues remain unanswered and further research is needed to establish the most effective diet in the prevention of heart disease. The optimal amount of polyunsaturated and monounsaturated fat to reduce LDL, increase HDL and decrease insulin resistance; the optimal balance between omega-3 and omega-6 fatty acids; and the role of fiber, phytochemicals, antioxidants and minerals still need to be clarified. Three dietary strategies that can be effective in both the prevention of heart disease and type 2 diabetes are substituting saturated and trans-fats for polyunsaturated and monounsaturated fats and increasing your

consumption of omega-3 fatty acids through increased consumption of fish, fish oil supplements or plant sources. In addition we can not over look the role of fruits, vegetables and whole grain products and their role in preventing heart disease. Make sure your diet is high in fruits, vegetables, whole grains and nuts and low in refined sugars and grains.

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