

How does a reduction in animal products beneficially affect cholesterol?

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Hypothesis

A plant-based diet is known to help reduce cholesterol and prevent cardiac events in patients on the diet. My hypothesis is that patients on the plant-based diet will experience an overall reduction in their lipid levels. Patients who are 100% committed to the plant-based diet will see a more drastic decline in their lipid counts than those on a 75% committed diet who will see a larger drop of their lipids than those who are on a 50% committed diet.

Justification

Patients on the 100% diet will consume no amount of cholesterol. Therefore, their cholesterol levels should decrease more rapidly within a given set of time than those patients who are on a 75% or 50% plant-based diet, because of the amounts of cholesterol within the patient's diet.

Methodology

Research participants were selected from actual Coronary Artery Disease patients, along with willing Cleveland Clinic faculty. Patients made alterations to their diet as did some of the Cleveland Clinic faculty. The rest of the faculty were left as a control group.

The research participants were asked to keep a food diary of their eating habits for approximately four weeks. Faculty were also encouraged to participate in an E-mail survey sent out, to learn about past eating habits.

After four weeks the patients and faculty participating in the study were asked to come in for a lipid panel. The lipid panels were compared with the lipid panels the research participants had drawn before the commencement of the research study.

Data

After four weeks, the patient's food diaries were collected. The diaries were then compared to the American diet which was used as a baseline. The food diaries were then ranked on a scale of one to ten of how many animal products were in the diet, with ten being the diet having the least amount of animal products.

The lipid panels that were taken before and after the diet compared and the net loss/gain noted.

Medications were also noted for those patients who were on a statin drug.

Number of Animal Products*	Food Diary Rating	Number of Animal Products*	Food Diary Rating
1-5	10	31-40	5
6-10	9	41-50	4
11-15	8	51-60	3
16-20	7	61-90	2
21-30	6	90+	1

*In a 4 week period

From these ratings we can group the patient's dietary habits by grouping in 5 categories:

100% American diet reduction (Vegan) : 10-9

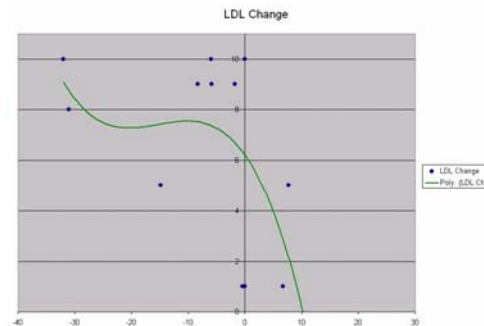
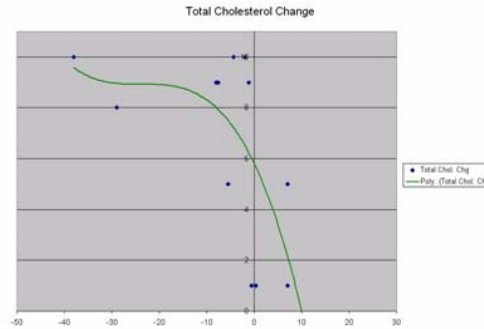
75% reduction American diet reduction : 8-7

50% reduction American diet reduction : 6-5

25% reduction American diet reduction: 4-3

American Diet : 2-1

Results

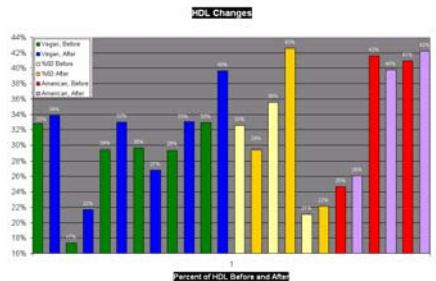


Each point on the graph represents a patient's cholesterol changes. The vertical scale of the graphs reflect the food diary ratings of the patients. The horizontal scale of the graphs represent the overall change, e.g. a point located at (-35,10) would indicate that the patient was on a ten point diet, and had dropped their cholesterol by thirty-five points. All changes in cholesterol were measured per month.

Conclusions

Our approach to study the effects of animal products in the diet proved that greater intake of animal products had a tendency to lead to elevated levels of "bad" cholesterol and total cholesterol. Also, patients on a ten point diet who showed little increase, were patients with relatively lower cholesterol levels, and on high dosages of statin medications.

Patients on a ten point diet also showed a tendency to have HDL ("good" cholesterol) levels increase than those on the American diet, or 50% reduction diet.



Recommendations

The American diet is a diet rich in fat and animal products. If we would reduce these products within our diets we could see drastic beneficial changes in our health including:

- Lower Cholesterol
- Lower LDL "Bad" Cholesterol
- Raise HDL "Good" Cholesterol
- General Health Benefits