

CORREES-GOETZ



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*hand delivered
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Dr. Fred Goetz
Professor of Medicine
University of Minnesota
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Dear Fred:

I was happy to review the material by Ivan. Almost nobody nowadays is doing this kind of work, which largely stopped around 1970 when Keys, Grande and Anderson could no longer get funding for it. I am delighted that this sort of thing is still going on, and only regret that Ivan's studies must now be limited to soy bean because of the source of his funding. We are far from knowing all we need to know about the effect on blood lipoproteins of change in dietary composition. I think it's great that the Minnesota tradition in this area is being upheld.

I have taken the liberty of loaning the material to Joseph Anderson for a 24-hour period, asking him to address specific questions of analysis and power of the design. If he comes up with anything significantly different from my comments, you will have the word in a day or two. I expect none.

Cordially,

Henry Blackburn, M.D.
Professor and Director

HB:mb

encl.

Comparison of the Effects on Blood Lipids of Inclusion of Different Vegetable Oils in the Diet, by Ivan Frantz, CRC Study #168

Dr. Frantz proposes continuation of his cross-over controlled studies of the effect of vegetable oil substitutions on the blood lipoproteins.

The objectives of the study are well laid out and involve, in this particular effort, the relative change in effect of soy bean oil and partially hydrogenated soy bean oil compared to a house diet with palm oil and with corn oil. The new application proposes to reduce the total dietary fat content more in line with current recommendations ($\pm 25\%$ fat) for lipid lowering in higher risk people.

The methodology involves recruitment of small experimental groups of six metabolically sound University students who will obtain all three meals, seven days a week, in the Clinical Research Center, and who will receive diet instruction, orientation and follow-up by the center staff.

The basic experiments run as follows: One week on house diet, with palm oil as the added fat, then beginning of the experiment and 3 weeks on house diet with palm oil as the added fat, followed by 3 weeks in which half of the subjects, that is 3 subjects, are on soy oil as the added fat and 3 on corn oil. After 3 weeks they cross over. Detailed lipoproteins are measured at the end of each 3 week period. Interim sampling of total cholesterol and triglyceride is apparently done to assess adherence. Preliminary results using a relatively high fat diet show highly significant changes in LDL and no changes in HDL. There are minor but significant changes in triglycerides and significant changes in VLDL but they were in different directions in different experiments.

Critique: The strengths of the studies lie in the importance of continuing research on these basic issues that have not been explored adequately in the last decade. There remain many important questions that can only be answered in such well controlled, almost metabolic ward conditions, using natural diets in contrast to formula diets. Thus the scientific issues are paramount, in my view, and the investigator brings a vast expertise and comprehension of these problems. Its strengths are also in determination of the effects of change in diet composition on detailed lipoprotein fractions, which makes the work new. The excellence of the facilities, including the CRC staff and laboratory quality control, are established.

Limitations of the study: It is possible that the sample sizes used do not give sufficient power to determine possible changes in HDL and in HDL subfractions. The inconsistent results on VLDL suggest the possible absence of effective control of weight and no data are given on weight change in these subjects, despite the attempt to hold them isocaloric.

I can nowhere find the actual amount of added fats. I can't quite understand why an ordinary American house diet was not used rather than the addition of the undesirable palm oil which few eat in any quantity.

I also find no data on the effect of the palm oil diet over an ordinary American house diet. Perhaps it "artificially" elevates the lipid values of the subjects at base line.

There is no discussion of measures of adherence, recording of snacks and alcohol intake or weight change.

Though Dr. Frantz states that the results of this study are on target with respect to predictions from Keys and Hegsted equations (with exception of

the cholesterol effect), the computations were not given and would be useful.

Another possible limitation is in the overall low values of total cholesterol in these student groups, all of which are under 200 mg/dl mean.

In sum, the questions are important, the investigator outstanding, the facilities excellent, the design superior, and the progress and conclusions so far appropriate and useful.