

May 20, 1974

Donald T. Fredrickson, M.D.  
Inter-Society Commission for  
Heart Disease Resources  
Suite 316  
44 East 23rd Street  
New York, New York 10010

Dear Dr. Fredrickson:

I am enclosing a copy of the paper I presented at the Federation meetings and data on the trans fatty acid content of margarines. Various members of the margarine industry have been in contact with me since the Federation meetings and have pointed out that margarine contains varying amounts of linoleic acid which they believe may counteract the influence of the trans fatty acids in margarine base stock. The L/O ratio of the red blood cells indicates that the swine fed margarine base stock were not deficient in linoleic acid. However, it is possible that the presence of trans fatty acids in hydrogenated fats requires the presence of more linoleic acid than fats devoid of trans fatty acids. I tried to bring this out when I served on the sub-committee on dietary fats of the American Heart Association in 1968.

W. H. Schmidt, Director of Product and Development Division of Lever Brothers Company, told me that his company would be glad to provide a trans-free margarine fat. However, they would need to add palm kernel oil or coconut oil as a "hardening stock" and both oils carry a 10¢/pound duty. Fred Mattson told me that the industry doesn't have enough PUFA available to hydrogenate soybean oil completely and rearrange with corn a cottonseed oil. The reluctance of the industry to provide trans-free margarine is, therefore, complicated by political and economic factors.

Data of the ISC Report on Finland (Table 3) is of interest. I spent ten days with Drs Miettinen and Nikkila after the Third International Symposium on Atherosclerosis in Berlin last October and visited the Lever Brothers plant in Helsinki with Dr. Miettinen. Consumption data indicates that the people consume approximately one-half of their visible fat as margarine which has a very high trans and low linoleic acid content. This margarine is prepared from hydrogenated fish oil and rapeseed oil. I brought back five samples of blood for analysis; you will note that this blood contains C20:3 $\omega$ 9 and some samples approximately 5% trans fatty acids.

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The Fleischmann corn oil margarine is prepared under contract as Standard Brands does not have a hydrogenation or margarine plant. It is high in trans fatty acids and low in C18:2 $\omega$ 6. I believe the industry will now take a serious look at trans fatty acids and help to determine whether a high level of linoleic acid will prevent completely the elongation and incorporation of trans fatty acids into cell membranes. I believe that the level of PUFA in margarines, shortenings and salad oils can and should be increased. It is unfortunate that some segments of the industry have taken advantage of incomplete data. One director of research told me that the industry was trying to provide high PUFA because the medical profession demanded it and the industry couldn't comply without increasing the trans fatty acid content of the margarine base stock. It is unfortunate that the relationship between PUFA and trans fatty acids was not thoroughly explored. However, I believe that the industry is now willing to consider another approach to the need for a high level of PUFA in dietary fats. In the meantime, I suggest that you contact Dr. Schmidt at Lever Brothers, Edgewater, New Jersey, and ask him to prepare a special high PUFA trans-free margarine for your study. Promise margarine is not as satisfactory as the Becel trans-free margarines that Lever has available in Europe.

Sincerely yours,



F. A. Kummerow, Director  
The Burnsides Research Laboratory

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