Reviewer's report

Title: Effects of acute ingestion of different fats on oxidative stress and inflammation in overweight and obese adults.

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Reviewer: Owen MacEneaney

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This study investigated postprandial metabolism in overweight and obese adults following the consumption of high fat meals composed primarily of monounsaturated fat, saturated fat, or long-chain omega 3 polyunsaturated fat. They observed the typical postprandial responses you would expect to high fat meals but also found small between-trial differences in NF-κB, TG and insulin. The effect of a high fat meal on lipids and other metabolic and inflammatory parameters is a relatively important area of study, considering the time spent in a postprandial state by many people and its relation to cardiovascular risk. The writing is of good quality and relevant references are given. This is an interesting and meritorious study but there a number of concerns which moderate enthusiasm.

The postprandial response to different fat meals has been documented previously along with clinically relevant endpoints like vascular function. This study’s findings are broadly in line with those of the previous investigations, adding modestly to the existing literature. The soluble ICAM-1 and NF-κB data are interesting but the differences are small and their clinical importance is difficult to interpret.

Major Compulsory Revisions

The study population seems a little ill-defined. There appear to be very large ranges in age and BMI, in addition to potential sex differences in these factors. What were the initial inclusion criteria for this investigation and the rationale behind them? Providing ranges for each of the characteristics in Table 1 would be helpful to readers in assessing the variability. The mean ± SE data alone provide an unclear picture of the groups unless the data are normally distributed. For example, the fasting glucose data might suggest that at least some subjects were diabetic.

The authors should clarify whether all subjects were studied at a similar time of day, given the strong diurnal variation in several markers of inflammation. In addition, they should clarify whether blood was collected by repeated venipuncture or via an in-dwelling catheter. The use of a catheter may elevate markers of inflammation in the vessel, potentially confounding the effects of the meal or weight category.
Level of interest: An article whose findings are important to those with closely related research interests

Quality of written English: Acceptable

Statistical review: No, the manuscript does not need to be seen by a statistician.

Declaration of competing interests:

I declare that I have no competing interests.