Reviewer's report

Title: Low-carbohydrate, high-protein diet score and risk of incident cancer; a prospective cohort study

Version: 2 Date: 19 March 2013

Reviewer: Rainer Klement

Reviewer's report:

Major compulsory revisions:
1. The authors state that "LCHP scores have increased in VIP participants with repeated samples 10 years apart". On the other hand, excluding all participants with more than one sampling occasion, the median follow-up time was 9.7 years. That means that many of the subjects with low LCHP score probably changed their eating habits towards an higher LCHP score. Although the study has many strenghts that have been discussed, the authors should discuss in more detail these weaknesses of the study design. What was the assumption that underlies the extrapolation of a one-point-in time assessment of eating habits towards the development of detectable tumors?

2. Concerning the arguments above, it seems incorrect to state in the conclusions that "these largely null results provide important information concerning the long-term safety of moderate carbohydrate reduction...". Again, this would assume that the participants have not changed their diet over a long time scale, which is certainly not true as the example of the rise in LCHP score over the years shows. This issue should be discussed in more detail.

Minor Essential revisions:
1. In the references section, there are some inconsistent abbreviations. For example, Ref. 4 has the journal name written in full, while the same journal name is abbreviated in Ref. 5. Please check all references for consistency!

2. The contradictory finding of increased risk for colorectal cancers with increasing LCHP score based on vegetable protein in men, but decreasing LCHP score in women with high saturated fat intakes is interesting and does not support the hypothesis that high animal protein intake increases the risk for these cancer types. Furthermore, there was no association between higher protein intake and increased risk in any other subgroup. How is this compatible with the "convincing evidence that a high consumption of protein sources such as red and processed meat is associated with increased colorectal cancer risk [33]"? The latter reference is also not cited correctly, see bottom of first page in this reference.

Minor discretionary revisions:
1. In the discussion, the role of carbohydrate restriction in tumorigenesis is briefly discussed. The authors state that carbohydrate restriction might have different
roles in the initiation and progression of some tumors. Which roles do they refer to? Are there some known mechanisms for the specific cancer sites considered by the authors?

2. A reference for the ICD-7 codes could be provided.

**Quality of written English:** Acceptable

**Statistical review:** Yes, but I do not feel adequately qualified to assess the statistics.

**Declaration of competing interests:**

I declare that I have no competing interests.