Reviewer’s report

Title: A Randomised Controlled Intervention Study Investigating the Efficacy of Carotenoid-rich Fruits and Vegetables and Extra-Virgin Olive Oil on Attenuating Sarcopenic Symptomology in Overweight and Obese Older Adults During Energy Intake Restriction: Protocol Paper.

Version: 0 Date: 12 Sep 2017

Reviewer: Alison Yaxley

Reviewer’s report:

This paper describes the protocol for an interesting study investigating the effect of a novel weight loss diet on sarcopenia related outcomes in older adults. The paper is well written with few errors. Please see comments below.

Abstract

Methods written in past tense rather than future tense as in the methods section in the body of the paper.

Introduction

Para 2 - Need clarity around the definition of sarcopenic obesity. FM increases as a part of ageing but it is not until a person with sarcopenia is obese that the term 'sarcopenic obesity' can be applied.

The aim states that you will "investigate the effect of an increased intake of protein, carotenoids and polyphenols on body composition, muscle strength, physical performance and quality of life in overweight and obese older adults during dietary energy-restricted weight loss." An increase on what? Are you tailoring the diets based on their current diet? How do you know they aren't already eating adequate protein, etc in their diet?

Methods

Who will screen the participants for eligibility?

I note that you plan to stratify by BMI. Do you plan to oversample the older old in order to get a more representative sample in terms of age?

Will you conduct a FFQ before your week of usual diet in order to assess how much the participants deviate, despite instruction not to?
How will the randomisation be managed - eg independent person, opaque envelopes, etc?

Frankfort plain - should be plane

What is the rationale for fasting and physical activity restriction for the DEXA measurements?

Please describe the scoring for the SF-36.

Why are you administering the Mediterranean Diet adherence questionnaire? The rationale for this is unclear as you are surely hypothesising that they have a poor diet at baseline.

Sample size

What is a 'medium' effect size? What is the alpha?

Statistics

Your plan assumes normal distribution of data. Please describe alternatives.

Are you planning to conduct intention to treat analysis?

Do you plan to control for usual diet in your analyses? Given that participants are changing from one (presumably poor) diet to the study diets might there be any carryover effects?

Discussion

Your first sentence indicates that you are only examining the impact of diet induced weight loss. Surely the novelty of your study is the composition of the diet. I suggest that this should be made clearer.

Furthermore, you indicate that you are examining the impact on SMM but I cannot see that you have indicated in your methods that you will calculate SMM. Please adjust accordingly.

Figure 1 - Please illustrate stratification on the diagram.

General comment: please check tense throughout as it slips between past and future in a few places.

Are the methods appropriate and well described?
If not, please specify what is required in your comments to the authors.

Yes

Does the work include the necessary controls?
If not, please specify which controls are required in your comments to the authors.

Yes

**Are the conclusions drawn adequately supported by the data shown?**
If not, please explain in your comments to the authors.

Yes

**Are you able to assess any statistics in the manuscript or would you recommend an additional statistical review?**
If an additional statistical review is recommended, please specify what aspects require further assessment in your comments to the editors.

I am able to assess the statistics

**Quality of written English**
Please indicate the quality of language in the manuscript:

Acceptable

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