

Pasta, is it really refined? A food for studying the four-tier fiber classification



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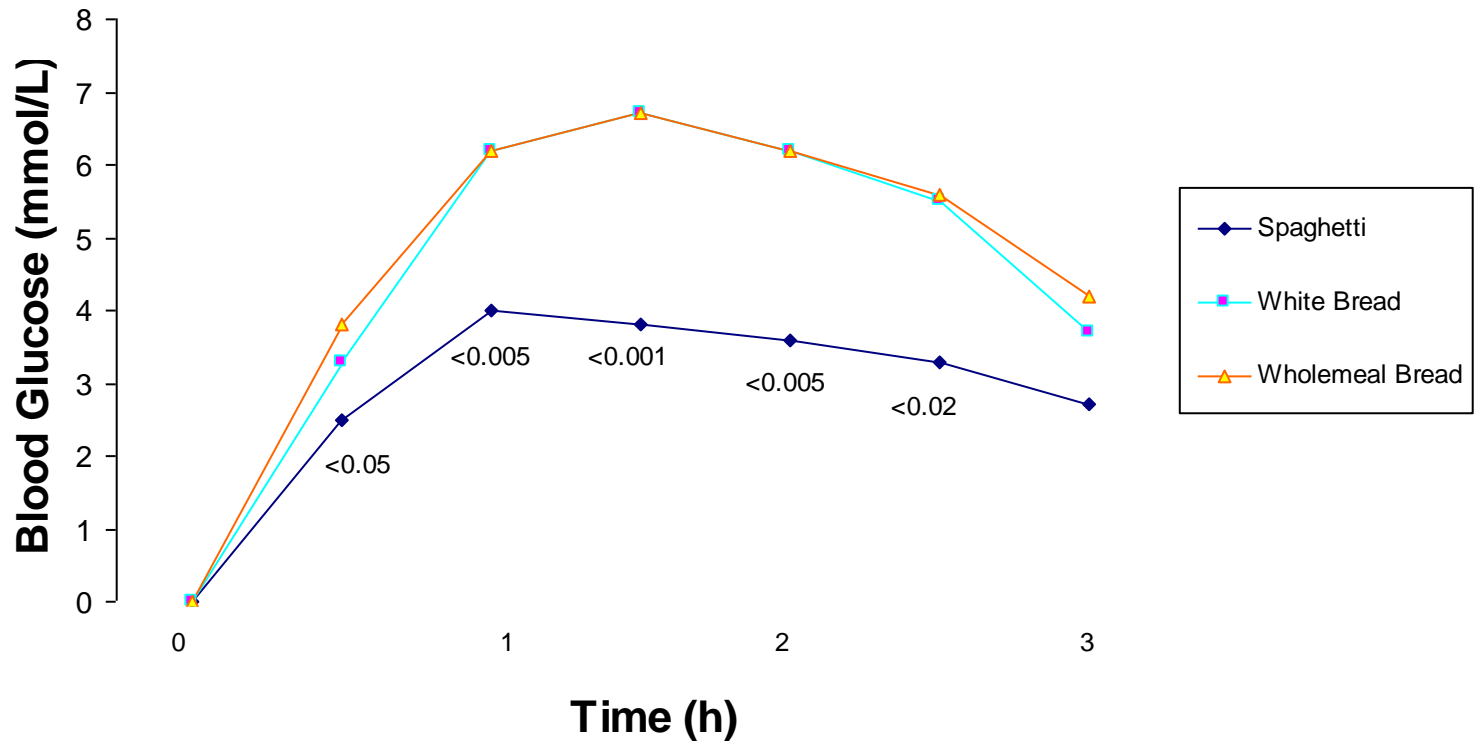
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- Pasta is an essential part of the Mediterranean diet,
- Has a low GI
- Is a vehicle for healthy foods and nutrients
- Yet in the last decade it has been labelled as unhealthy because it has been considered a refined carb.
- However, it is made from semolina flour which contains clusters of cells and therefore could be classified as **level 2** in the new dietary fibre index and some at **level 3**.



GI of Bread and Spaghetti

Blood Glucose Increments after Spaghetti, White and Wholemeal Bread (9 diabetic subjects)



Pasta and Cancer Risk

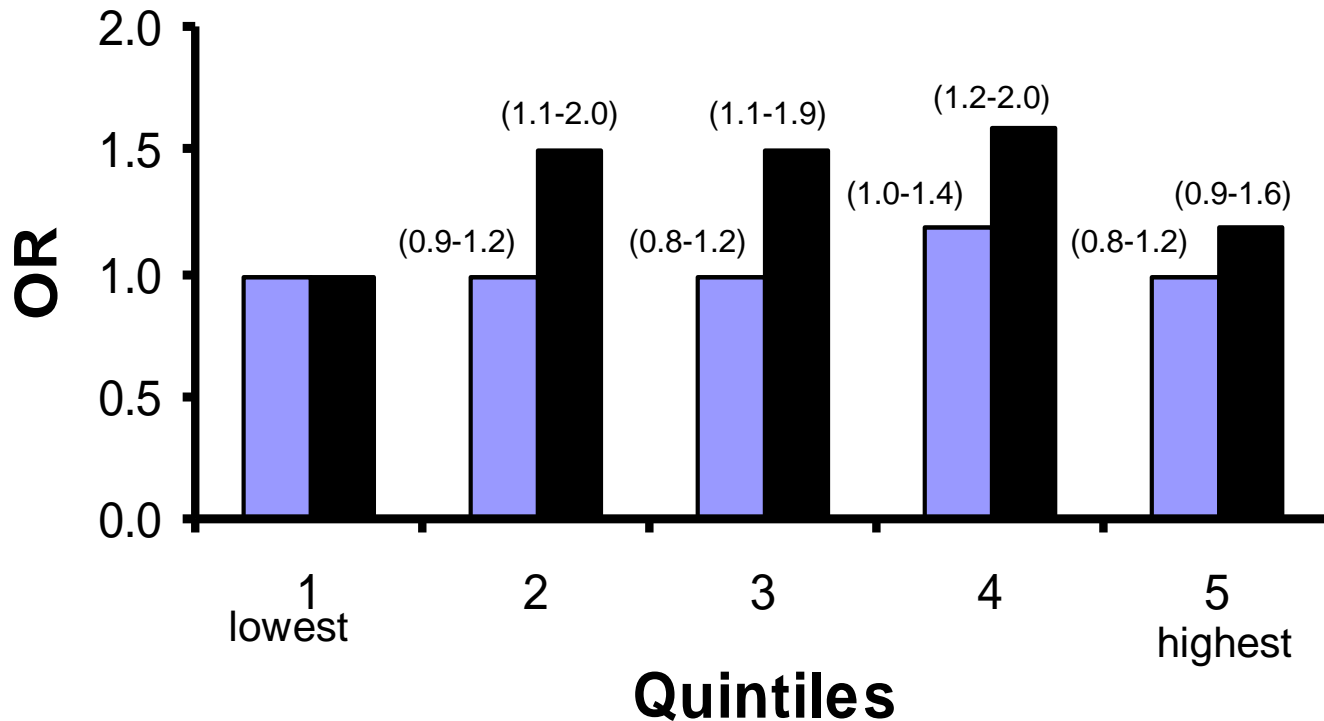
OR and 95% CI of breast (BC) and colorectal cancer (CRC) by pasta consumption.

BC: $\chi^2(\text{trend}) = 0.6$; $p = 0.43$

CRC: $\chi^2(\text{trend}) = 2.9$; $p = 0.09$

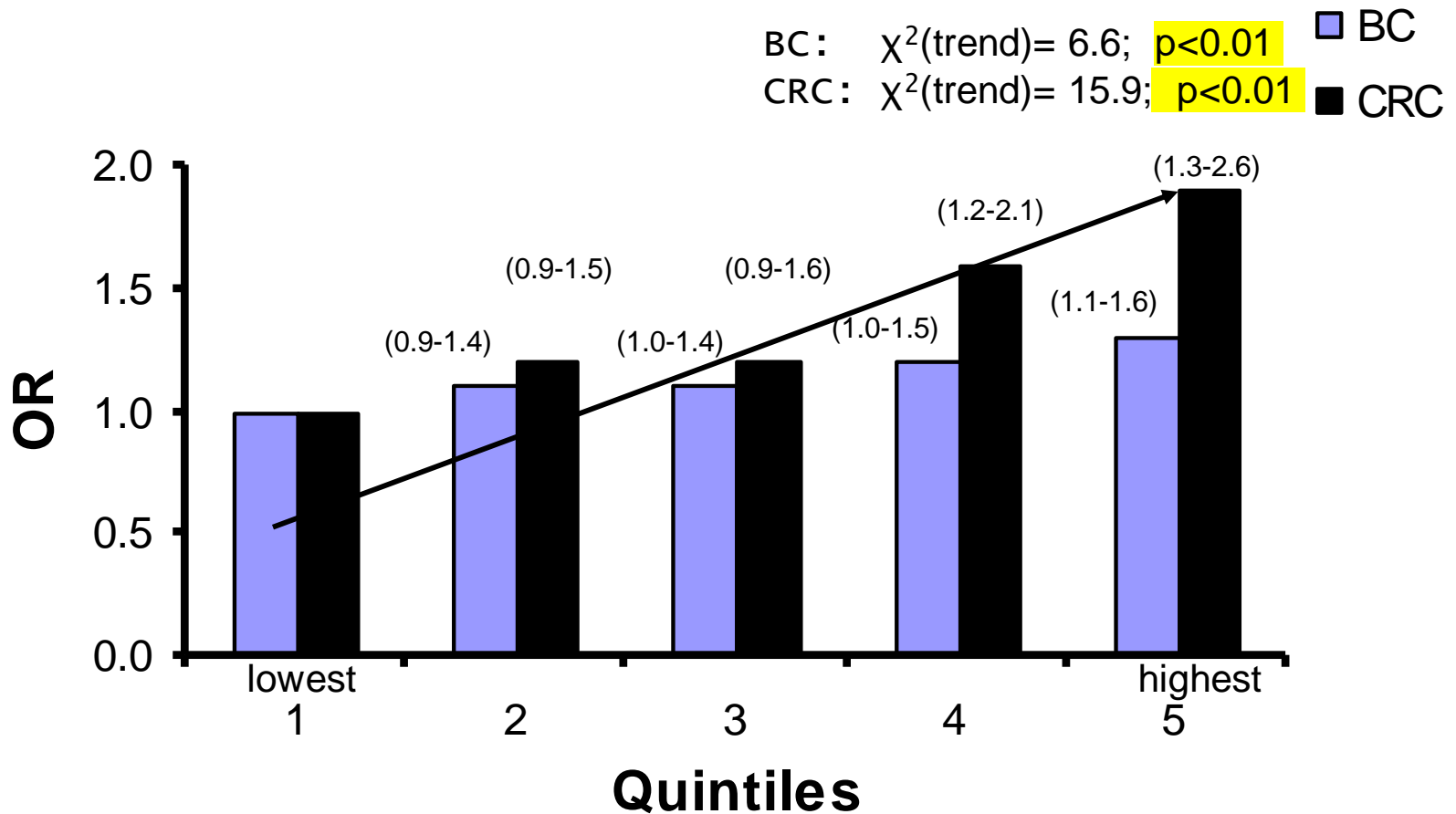
■ BC

■ CRC

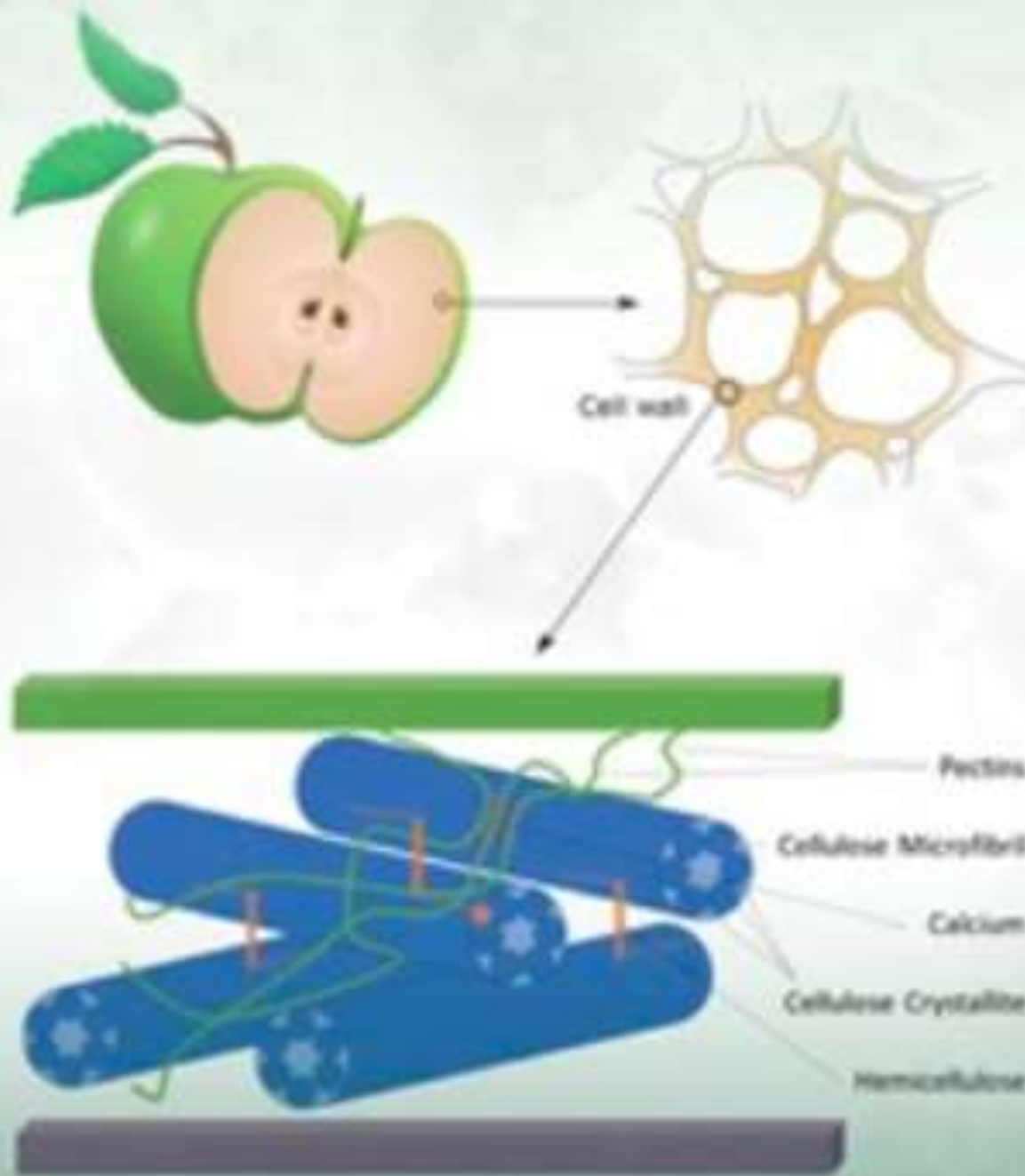


Bread and Cancer Risk

OR and 95% CI of breast (BC) and colorectal cancer (CRC) by bread consumption.



Cell wall



The four-tier classification of dietary fiber

(Marie-Ann van Ginkel & Peter Ellis)

- 1. **Intact***: plant foods that are completely or largely intact such as tree nuts, legumes, fruits (e.g. apples), whole grains that retain some or all of their physical structure
- 2. **Clustered***: Physically disrupted plant foods that contain separated (single cells or cells or clusters of cells): examples are **semolina**, mashed bananas, couscous, badly mashed potato.
- 3. **Ruptured***: Plant cells are comminuted by milling or other mechanical methods: there are no (or minimal) clusters of cells although cell wall constituents will be present (e.g. wheat and legume flours)
- 4. **Refined***: Complete loss of the dietary fibre matrix or no dietary fibre present at all. (e.g. cornflour)

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Project proposal

(Augustin, van Ginkel, Ellis)

Therefore, we propose a study that will investigate whether white pasta should be considered refined or unrefined because part of level 2 and 3. The project will include investigations into the following aspects:

- 1) Determine the quantity of clustered cells present in different pastas in comparison to white bread.
- 2) Examine 4 foods using a variety of techniques including imaging to determine where each food would lie within this index. The products are:
 - a. Spaghetti made with semolina flour
 - b. Gluten free Spaghetti
 - c. Wholemeal Spaghetti
 - d. White bread

Thank you
Let's start our work

