Snack (Re)formulation in the Improvement of Health Effects of Glycaemia and Satiety Responses: Preliminary Results

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Background

- Snacking impacts overall quality of dietary patterns
- Snacking is common
- Snacks are often highly processed and unhealthy
  - Energy dense
  - Nutrient poor
  - Rich in sugar, fat and sodium

Background cont.

- Consumer-driven trends to formulate healthier snacks
- Greater consumer focus on natural ingredients and specific nutrients
  - Whole grains
  - Proteins
  - Dietary fibre
- Whole grain foods have lower GI impacts than refined equivalents
- Higher fibre increases satiety → decreased food intake

Aim

- To develop a healthier snack prototype using wholesome plant-based ingredients that
- Has a low glycaemic index
- Has favourable satiety effects and
- Is acceptable by consumers

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Formulation

Ten combinations trialled – good nutrient profile score and acceptable taste

Oat (*Avena sativa L.*)
Bran
Dried Fruits (kiwifruit)
Almonds

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Nutrient profiling model

Food Product	Product		
Value/100g		Label Value	Points
Energy (kJ)		1460	3
Sat Fat g		1.59	2
Total Sugar g		16	4
Sodium mg		60	0
Total Bad Points			9
Protein (g)		13.4	5
NSP Fibre (g)		9.4	5
Fruit & Vegetables (%)		37	0
Total Good Points			10
Overall Point Score			**-1**

NSP - Non starch polysaccharide, cellulose, pectins …

A food is classified as ‘less healthy’ where it scores ≥ 4 points, foods making claims about GI, GL, or ‘diet’ are required to meet the nutrient profiling score criterion

(FSANZ, 2015)

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Glycaemic index and satiety responses

Methods:

- N = 10, healthy
- 10-12 hours overnight fast
- Finger-prick blood samples taken at 0, 15, 30, 45, 60, 90, and 120 minutes
- Satiety to be scored after each blood sample on a 100mm VAS scale

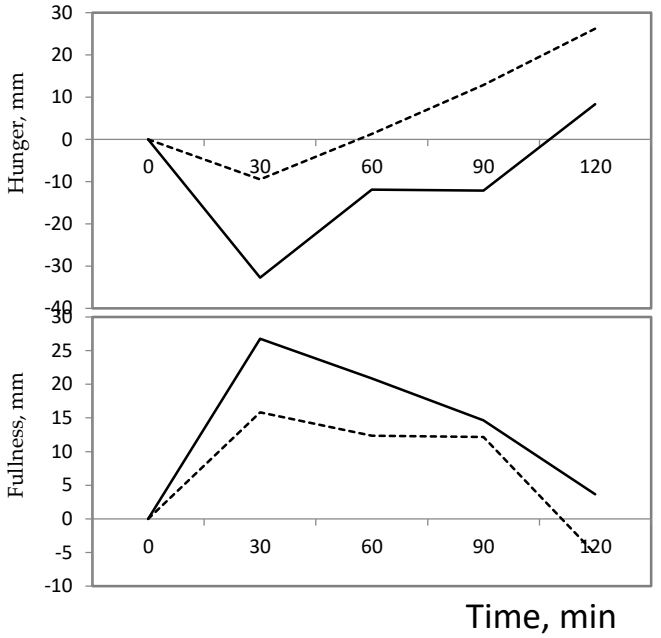
Glycaemic index and satiety responses

Results:

GI = 51

The GI of food is classified as high (≥ 70), medium (56-69), low (≤ 55); relative to glucose which is 100

(Brand-Miller et al., 2003)



Mean changes (Δ, n=10) in self-reported hunger, fullness for the developed prototype (solid) compared with glucose drink (dots).

Consumer Liking Assessment

Methods:

- N = 66
- Evaluation of colour, texture, taste and overall liking on a 100mm VAS scale

Results:

- Ratings relatively lower than commercial product
- All liking attributes above centre point
- Developed prototype is sensory acceptable

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Conclusions

- Snack prototype with a good nutrient profile
- Favourable satiety and GI effects
- Sensory acceptability

An approach of developing healthier snack products with verifiable health-related claims through (re)formulation could be translated into relevant dietary changes associated with potential improvements in public health.

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Thank you

Questions?

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