

### Can the Sequence of Food Presentation Influence Postprandial Glycaemia? (P10-072-19)

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**Objectives:** The study was to investigate how a rice-based meal composed of rice, vegetable (green leaf) and meat (breast of chicken) when presented in different order of sequence, impacts on postprandial glycaemia.

**Methods:** In a randomized controlled crossover trial, sixteen healthy Chinese adults participated in this study (13 males and 3 females). Subjects consumed in random order 5 experimental meals. The 5 test meal were: (1) vegetables first followed by meat and rice (V-MR), (2) meat first followed by vegetables and rice (M-VR), (3) vegetables first, meat second followed by rice (V-M-R), (4) vegetables, meat and rice together (VMR), (5) rice followed by vegetables and meat (R-VM). Vegetable consumed first followed by meat and rice (V-MR), finally vegetable consumed first, followed by meat and followed by rice (V-M-R).

**Results:** In comparison to rice consumed first followed by vegetable and meat (R-VM), the overall postprandial glucose response was significantly lower after the consumption of vegetable first, followed by meat and rice (V-MR) or meat first, followed by vegetable and rice (M-VR) or vegetable followed by meat and followed by rice (V-M-R) or vegetable, meat and rice consumed together (VMR). The insulin iAUC (0–60) was significantly lower after V-M-R than M-VR, VMR and R-VM. V-M-R food sequence intake stimulated higher GLP-1 release than other meal sequence. However, GIP response was lower after V-MR and V-M-R than M-VR and R-MR food sequence.

**Conclusions:** Food sequence can considerably influence a meals response to glycaemic, insulinaemic and incretin. V-M-R food sequence intake lowered the glycaemic response significantly with an increased stimulation of GLP1. The order of food presentation has a great potential to alter the glycaemic response of rice-based diets. Our results provide a simple but effective way to reduce postprandial glucose and may help prevent the transition from pre-diabetics to diabetics

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**Supporting Tables, Images and/or Graphs.**

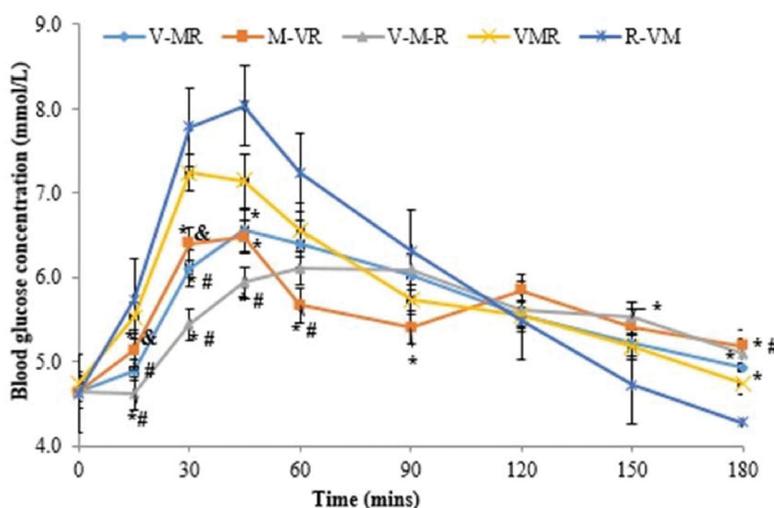


Figure 1. Mean fasting and postprandial glucose response to five different food sequence intake over 180 min (n=16). Data were analysed by using 2-factor repeated-measures ANOVA for comparison among the five food sequence intake treatments over 180 min. There were significant effects for treatment ( $P<0.001$ ), time ( $P<0.001$ ) and treatment  $\times$  time interaction ( $P<0.001$ ); post hoc comparisons were adjusted by Bonferroni's correction. \*  $P<0.05$  compared with R-VM sequence; #  $P<0.05$  compared with VMR; &  $P<0.05$  compared with V-M-R sequence. Values are means  $\pm$  SEMs.