

## ICCN Poster Presentations

### Obesity

#### Development of a life-size photo guide to food serves

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**Background:** Under reporting or misreporting of food and beverage consumption is a common problem in determining dietary intakes. This problem is compounded when an individual client's concept of serve and portion size differs from that used by health professionals. Methods for determining serve sizes include plastic food models, food packaging, artwork and measuring vessels, but the range of foods depicted is often small and these visual prompts are not usually given to the client to take home. The need for a comprehensive, portable guide to food and beverage serves was identified.

**Project extent and design:** A literature search failed to identify any Australian photographic guides to food serves. In clinical practice, a comprehensive guide is required. More than 350 foods and beverages were selected to represent unbranded, popular items from six food core groups. A target energy value for one serve was assigned to each food group. Using XYRIS dietary analysis software and manufacturers data, target weights for each item were determined to match the target kJ values. Items were selected or prepared to match the target weight. Items were photographed with a 3.3 mega pixel digital camera and vernier measures recorded. Using Photoshop V6, images were 'cleaned' and life-size draft prints were checked to confirm that the image was a true life-size representation.

**Outcome:** The images' value as an aid in explaining energy equivalents and serve sizes was tested with adults and children in a private dietetic practice during a 2-year trial period. Symbols to highlight undesirable, high saturated fat items were added. In response to client requests for take-home copies of the images, a full colour 185-page guide with more than 300 life-size photos representing 345 foods and beverages with an index of nutrient composition was published. The publication is a portable nutrition communication aid with application in obesity management, cardiovascular disease, diabetes and general nutrition. Further evaluation with low literacy groups and those from non-English speaking backgrounds is planned.

#### Reduction of the postprandial glucose and insulin response in serum of healthy subjects by an arabinoxylan concentrate isolated from wheat starch plant process water

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**Background:** During wheat starch processing soluble constituents of flour such as proteins, pentosans, and minerals are dissolved in the process water and usually used for animal feeding. However, the pentosan fraction mainly consisting of arabinoxylans may be useful in human nutrition to lower the glycemic index of cereal products. Therefore, a new process for concentrating and purifying the pentosans has been developed. The resulting soluble dietary fiber concentrate has been studied for its ability to reduce the postprandial glucose and insulin response in healthy volunteers.

**Methods:** After enzymatic, fermentative, mechanical treatment, cross flow ultrafiltration and spray-drying a product containing 60 % of arabinoxylan-enriched dietary fiber was obtained from wheat starch plant process water. The metabolic effect of the concentrate was investigated in two double-blind controlled studies with 11 (study 1) and 15 (study 2) healthy volunteers, respectively. At two mornings within a week each subject consumed isocaloric test meals (365 kcal) in a randomised order, one of them containing 6 grams of the arabinoxylan concentrate delivered via rolls. For measuring serum glucose and insulin blood samples were collected over the subsequent two hours.

**Results:** The postprandial glucose response expressed as incremental area under curve was reduced by the arabinoxylan concentrate, in study 1 significantly (by 24 %,  $P < 0.05$ ), in study 2 in tendency ( $P = 0.051$ ). The postprandial insulin response showed significant reductions in both studies (by 9 % and 20%,  $P < 0.05$ ).

**Conclusion:** A spray-dried arabinoxylan concentrate administered via rolls in a breakfast is a soluble dietary fiber effective to lower the postprandial blood glucose and insulin response.