NZ Key Foods Programme: Relationship to the 2008 Adult Nutrition Survey

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\textbf{Background} – The New Zealand Food Composition Database (NZFCD) is a joint programme between the Ministry of Health and Crop & Food Research (CFR). Due to resource constraints (nutrient analysis is costly and time consuming) and the rapidly changing food supply, it is impractical to analyse the nutrient levels in every food available for consumption. The USDA Nutrient Data Laboratory and Food Standards Australia New Zealand (FSANZ) employ key food methods (1) that utilize existing nutrient profiles and nationally representative food consumption survey data.

\textbf{Objective} – With the upcoming 2008 New Zealand Adult Nutrition Survey, the key food approach can assist with identifying foods that are likely to be major contributors to the population’s nutrient intakes and, thus, ensure there is up-to-date analytical nutrient data for these foods in the NZFCD. The aim is to have approximately 40 foods on the Key Foods List, considering the available budget.

\textbf{Design} – FSANZ’s Dietary Modeling of Nutritional Data computer program (DIAMOND) contains a list of the foods consumed in the NZ 1997 National Nutrition Survey and their corresponding nutrient values. For each nutrient listed, foods were ranked in order of contribution from highest to lowest. The nutrient scores for each food were summed to create a score representing the overall nutrient contribution of that food to the diets of adult New Zealanders.

\textbf{Outcomes} – The top five key foods identified by the cumulative contribution of all nutrients: food groupings i.e. beef, white bread, chicken and wholemeal bread or individual foods i.e. standard homogenised milk.

\textbf{Conclusions} – The key foods approach will ensure that more samples will be collected and prepared for foods that provide important amounts of nutrients of public health significance to the diet and not every sample will be analysed for all the nutrients currently in the NZFCD.

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Sialic acid concentration in conventional foods of Australia

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\textbf{Background} - Sialic acid (Sia) is a family of 9-carbon sugars usually expressed as terminal residues on mammalian glycoconjugates. They play a key role in neural growth, development and function, cell signalling and recovery of injured neuronal tissues. N-acetyleneuraminic acid (Neu5Ac) is the predominant Sia in humans, while most mammalian tissues contain both Neu5Ac and N-glycolylneuraminic acid (Neu5Gc). Ketodeoxynonulosonic acid (KDN) is the newest member of the Sia family. Neu5Gc is absorbed into human tissues as a result of eating red meat and milk products, and is associated with inflammation in human tissues. The concentration of Sia in Australian food products is unknown.

\textbf{Objective} - To determine the concentration of Sia in uncooked and cooked red meat, seafood and poultry.

\textbf{Design} – The following uncooked food products were purchased from an Australian supermarket: pork, beef, lamb, prawns, salmon, chicken and chicken eggs. Cooked ham and turkey were also analyzed. All tissues were homogenized and hydrolyzed in 0.05M H\textsubscript{2}SO\textsubscript{4} for 30 min at 80°C. The concentrations of Neu5Ac, Neu5Gc and KDN were determined using Dionex HPAEC, pulsed amperometric detection with an ion exchange column. All samples were analysed in triplicate.

\textbf{Results} - The concentration of total Sia (µg/g wet tissue) in Australia raw meat was highest in pork (65), followed by chicken (53), lamb (40) and beef (17). The percentages of Neu5Gc were 14%, 0%, 33% and 0%, respectively. Salmon contained higher levels of Sia (55) than prawns (25). KDN was the predominant form of Sia in salmon (60%), followed by Neu5Ac (36%). Cooked ham contained 56 µg/g of Sia and turkey only 7. Eggs contained the highest levels of Sia (642 µg/g), of which 57% was in the egg white.

\textbf{Conclusion} - The highest concentration of Sia in the Australian foods examined was found in eggs, followed by pork, ham, salmon, chicken, prawns, lamb, beef and turkey. Knowledge of the Sia content in conventional foods may help us better understand possible medical disorders involving the uptake of the “non-human” Neu5Gc from our diet.