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Background/Aims: An accurate non-invasive method is required to measure body composition of infants. Ultrasound (US) and bioelectrical impedance analysis (BIA) are inexpensive methods that could fulfil this need in predicting percentage fat mass (%FM). Both have been well validated in adults and children but not in infants. This study compared these methods with reference to international normative data.
Methods: %FM was calculated from whole-body BIA and US skin-fold (SF) measurements (biceps, triceps, subscapular, suprailiac) of 2, 5, 9 and 12 m-old healthy, breast-fed term infants ($n = 44$). %FM values were determined using 6 age-appropriate BIA equations and 3 US-derived SF equations. Data were analysed using ANOVA and probability analysis.
Results: %FM was significantly ($p < 0.001$) lower at 2 than at 5, 9, or 12 months of age irrespective of measurement method. Overall predictions based on US were not significantly different from BIA-based predictors ($p = 0.076$) but there were significant differences between individual predictions. No predictor equation, US or BIA, performed well at 2 m, with < 30% of predicted values falling within the 95% confidence range for the reference data. At 5, 9, 12 m, BIA-based predictors performed better than US-based predictors but with most predicting only between 40 and 68% of subjects within the 95% confidence reference range compared to 0 to 50% for US predictors.
Conclusions: Simple techniques for the assessment of body composition do not predict accurately percentage body fat in infants under 1 year of age when compared with reference data.
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CHILDREN, MEDICAL DIETS AND HOSPITAL FOOD SERVICES: MANAGING STRICT DIETS AND PATIENT SAFETY IN A PROCESS DRIVEN ENVIRONMENT

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Background/Aims: The Children's Hospital at Westmead (Sydney Children's Hospitals Network), is a tertiary paediatric hospital with 312 inpatient beds. The Food Service Department operates a cook fresh food production system using 3 plating lines a day. There are more than 85 special diets. A series of incidents in 2014 involving a patient diagnosed with anaphylaxis to multiple food allergens required formal investigation of risks from food to clinical management and inpatient safety. One incident resulted in harm to the individual requiring a five hour admission to the paediatric intensive care unit. In two incidents a "special" nurse was bedside however, despite training in anaphylaxis management, neither nurse appeared to recognise the risk to the patient presented by food.
Methods: Ingredient compliance with diet codes, the range of diet codes, meal ordering, food production, plating and distribution procedures were examined and mapped generating significant changes across the system. Communication methods were also reviewed.
Results: The two consequent investigations of these incidents identified multiple points of risk throughout the food production process. The diets at greatest risk were those requiring strict accuracy of content with minimal tolerance for error. These included multiple allergy diets, some metabolic diets and the ketogenic diet.
Conclusions: There are multiple points of risk to inpatient safety along a streamlined food provision pathway in a hospital. Significant changes have been made to mitigate risk at various points however 100% risk free is not achievable. Heightened awareness of all concerned appears to be key.
Funding source(s): N/A.

POSTER SESSION 2.
CITRUS FLAVONOIDS AND HEPATIC *N*-3 LC-PUFA BIOSYNTHESIS

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Background/Aims: Flavonoids such as naringenin and naringin are suggested to affect lipid metabolism by modulating the activity of Δ6 and Δ5 fatty acid desaturases and other key genes and enzymes. Consequently, the biosynthesis of *n*-3 LC-PUFA from ALA is likely to be modulated in the presence of flavonoids.
Aim: To investigate the effect of naringenin and naringin on *n*-3 LC-PUFA biosynthesis from ALA in hepatocytes.
Methods: FaO hepatocytes were seeded in 30 small flasks then incubated for 5 days with or without 100 μM ALA (3 flasks each) with no added flavonoids. Other flasks received 100 μM ALA in addition to either naringenin (6 flasks, 50 μg/mL of culture medium) or naringin (6 flasks, 20 μg/mL of culture medium). Also, 6 flasks received naringenin and 6 other flasks received naringin but without adding ALA. Two-way ANOVA tested the differences and interaction between groups.
Results: EPA content was marginally but significantly enhanced in hepatocytes incubated with naringenin and ALA (1.0 ± 0.1 μg/mg of cells) and naringin with ALA (0.9 ± 0.1 μg/mg of cells). Flavonoids without ALA did not change EPA content in the cells. Also, the flavonoids did not significantly improve DPA or DHA content in the cells regardless of ALA supplementation.
Conclusions: Naringin and naringenin, flavonoids from citrus peel, have a potential in improving *n*-3 LC-PUFA biosynthesis from ALA in hepatocytes *in vitro*. Further studies can confirm this effect *in vivo* and provide an insight into functional foods interaction with fatty acid metabolism.
Funding source(s): N/A.

'PHYSIOLOGICAL' TEMPERATURE FOUND TO BE PRIME FOR EXTRACTING SWEET CHERRY ANTHOCYANINS

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Background/Aims: Extract optimisation not only results in a greater yield, but allows accurate quantitation of the compound and comparison between different cultivars of a species. While optimisation of anthocyanin extract has been described for a variety of fruits, extraction from the whole fruit of sweet cherries has not been comprehensively investigated. Our primary aim was to determine the optimal parameters for the extraction of anthocyanins from sweet cherries − specifically temperature and time of extraction, solvent to solid ratio, solvent type and solvent concentration.
Methods: Extractions with one or two independent variables were conducted using the edible portion of *Prunus avium* 'Lapins' cherries. The optimal condition for each parameter was based on total anthocyanin content (TAC), and was used for all subsequent optimisation experiments. TAC was calculated by summation of UPLC-derived peak areas, expressed as mg of cyanidin-3-glucoside equivalents per 100g fresh weights (mg/100 g fresh weight).
Results: Extraction for 90 minutes at $37^{\circ}C$, using 100% acidified ethanol at a solvent to solid ratio of 10mL/g, resulted in the highest TAC (243.5 mg/100 g fresh weight).
Conclusions: The TAC of 'Lapins' cherries determined using the optimised protocol is more than twice that previously reported. Results from our study contradict previous anthocyanin extraction research, which advocates the use of either low temperature or short, high temperature extractions to maximise yield. The novel finding that extraction at physiological temperature results in the highest TAC is of significance when considering translation to *in vivo* applications.
Funding source(s): Researcher in Business grant.

ASSOCIATION BETWEEN URINARY SODIUM, SODIUM-TO-POTASSIUM RATIO AND BLOOD PRESSURE IN ADULTS

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