

increased. Dietary intervention may be beneficial in obese adults with asthma.

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#### EFFECTS OF TOCOTRIENOL-RICH FRACTION ON PREVENTION OF DETERIORATION OF BONE QUALITY

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**Background/Aims:** Maintenance of bone quality is important in the prevention of osteoporotic fracture. Bone quality is determined by collagen cross-links which are regulated by enzyme lysyl oxidase (LOX) in osteoblastic cells. LOX expression is known to be inhibited by activation of Janus kinase (JAK) signaling located in the upstream of LOX. But, JAK signaling is reported to be inhibited by Tocotrienol-Rich Fraction (TRF), a member of the vitamin E family. However, the effect of TRF on the LOX expression in osteoblastic cells has not been understood. Here, we have investigated the relation between TRF and LOX expression.

**Methods:** A human osteosarcoma cell line (MG-63) was cultured in medium containing 5 µg/mL or 10 µg/mL TRF. After 24 h of treatment TRF, we analyzed LOX mRNA expression and JAK1, JAK2 protein expression and activation. Analyses of mRNA expression and of protein expression and activation were performed by real-time PCR and western-blotting respectively. Expression and activation levels were compared TRF-treated group and untreated control group, and statistical analysis were performed by using Dunnett's test.

**Results:** In TRF-treated group for 24 h, LOX mRNA expression increased (control vs. TRF 10 µg/mL,  $p < 0.01$ ) while both JAK2 protein expression and activation decreased (control vs. TRF 10 µg/mL,  $p < 0.05$ ), and JAK1 expression and activation remained unchanged. **Conclusions:** We demonstrated that TRF increased LOX mRNA expression via inhibiting JAK2 signaling. These results suggest that TRF may be effective to prevent the deterioration of bone quality.

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#### SCHOOL CANTEENS: A SYSTEMATIC REVIEW OF STAKEHOLDER'S PERCEPTION AND USE

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**Background/Aims:** This systematic review of the literature identified current research relating school canteens. In particular, the review focused on the perceptions of canteens, their use and compliance with healthy canteen policies in Australia.

**Methods:** A systematic review of the literature was conducted on papers published between 1948 and January 2015 from three key nutrition databases: CINAHL, Academic Search Complete and Medline. Data was extracted using the American Dietetic Association Evidence Process Manual. Eligible studies included those looking at the perceptions of school canteens, purchasing behaviour and influence, spending and food intake of key stakeholders (students 5-18 years, parents, School Principals, canteen managers, teachers and Parents and Citizen associations). Studies investigating policy compliance were also included. Two reviewers independently reviewed the papers with a third reviewing results.

**Results:** A total of 2,741 results were retrieved. After subsequent removal of duplicates and studies which did not meet the inclusion criteria, 11 studies were included in the review. Overall, studies were descriptive in nature. Two percent of students were reported to use the canteen daily. Boys were more likely to purchase food than girls. Non-healthy foods such as, meat pies, sausage rolls confectionary and potato crisps were the most popular foods purchased. Compliance with healthy canteen policies was reportedly low in terms of product provision due to declining funding, volunteers and student's preference for unhealthy

cheap foods.

**Conclusions:** Further research into strategies to improve implementation and compliance with healthy food guidelines is needed.

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#### SODIUM, POTASSIUM AND BLOOD PRESSURE IN ADULTS

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**Background/Aims:** Existing reviews of the sodium-blood pressure and potassium-blood pressure relationships were updated to assess whether reported relationships existed in both normotensive and hypertensive subjects.

**Methods:** The existing reviews selected used similar inclusion criteria such as randomised controlled trials lasting at least four weeks and reporting blood pressure. Both reviews examined resting blood pressure as the main endpoint. Their search strategies were replicated in the same databases to include more recent literature in June and August 2013 for the potassium and sodium reviews respectively. A quantitative meta-analysis tested for sub-group differences by blood pressure status.

**Results:** One new sodium study conducted in hypertensive people reported a significant reduction on resting blood pressure. It did not alter previous conclusions that there is a relationship in both normotensive and hypertensive groups. One new potassium study conducted in normotensive people (no effect) could not be added to the meta-analysis because only ambulatory blood pressure was reported. Despite this, the existing review of resting blood pressure was re-analysed to remove some errors. This did not alter the overall results. There was a significant interaction by population subgroup with an effect seen only in hypertensive people. However, only two studies reporting resting blood pressure were conducted in normotensive people.

**Conclusions:** In studies lasting at least four weeks, reducing sodium intake reduced blood pressure in both normotensive and hypertensive people although the magnitude of effect was less in normotensive people. For potassium, there is insufficient data to draw a firm conclusion in normotensive people.

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#### NUTRITION KNOWLEDGE AND ESTIMATION OF KILOJOULES: WHO IS GETTING IT RIGHT?

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**Background/Aims:** For many consumers, the primary concern when choosing foods to eat out-of-home is value for money. However, the increase in the portion size (PS) of meals served out-of-home has potentially contributed to a distorted perception of appropriate PS and may incite over-eating. The aim was to determine whether consumers with high objective nutrition knowledge (NK) were more likely to correctly identify the energy (kJ) differences between 'standard' and 'large' serving sizes for 8 eating occasions (EO) using an online quiz.

**Methods:** The kJ for 8 'standard' EOs were provided and participants had to identify the correct kJ for the 'large' EOs. Additional questions included demographics and assessment of objective NK using validated questions.

**Results:** All questions were completed by 401 adults; predominately females (89%); 18-34 yrs (61%); following no special diet (69%). Overall, 12% correctly identified the kJ content for 6-8 of the 'large' EO (6EO). Only 29% responded correctly for all objective NK questions, and were not more likely to correctly identify kJ for 6EO (Mean 3.9 ± 1.4 SD vs. 4.0 ± 1.4,  $p = 0.502$ ). Overall, 59% preferred to use 'calories' than 'kilojoules' for measuring energy in food.

**Conclusions:** Preliminary analyses suggest that despite high nutrition