P39

Effect of calcium and vitamin D on postprandial vascular function in Indian males
MJ Soares¹, R Kuriyan², Kurpad AV²

¹Program of Nutrition, School of Public Health, Curtin University of Technology, Perth 6845, Australia.
²IPHCR, St. John’s National Academy of Health Sciences, Bangalore 560034, India.

Background – Postprandial metabolism is acutely influenced by calcium and vitamin D intake (1).

Objective – To determine the effect of calcium and vitamin D on postprandial vascular function.

Design – Seven lean males aged (mean ± SD) 26 ± 4.6 y and BMI 21 ± 1.7 kg/m² completed a within-subject, single blind design. After an overnight fast, subjects randomly consumed a standardised 2300 kJ breakfast where calcium and vitamin D intakes were varied (meal A ~200 mg/15 IU, meal B ~450 mg/140 IU, and meal C ~700 mg/265 IU), by including powdered calcium carbonate & vitamin D₃ (Shelcal-500, Elder Pharmaceuticals Ltd. India). Non-invasive measures of endothelial function, stiffness indexes (SI), reflective index (RI) and heart rate (HR), were assessed from the digital volume pulse by photoplethysmography (Pulse Trace PT-1000, Micro Medical, UK). Serial measurements were made before, every 30min for 2h and hourly thereafter for 5h.

Outcomes – Incremental area under the curve (Δ) over 2h and 5h for each variable were analysed by repeated measures ANOVA. There was no difference in any fasting endpoint on the three visits. SI did not change with meal ingestion. ΔRI was significantly suppressed only following meal A, and this response was significantly different from the other meals at 2h (meal A vs. B, \( P = 0.04 \); meal A vs. C, \( P = 0.018 \)) and at 5h (meal A vs. B, \( P = 0.25 \); meal A vs. C, \( P = 0.043 \)). There was no difference in Δglucose, Δinsulin and ΔHR between meals.

Conclusions – The data provide preliminary evidence for the modulation of postprandial vascular tone by calcium and vitamin D.

References

MJS acknowledges the support of Curtin University of Technology and Micro Medical, UK.

---

P40

Measurement of dietary vitamin B₁₂ and folate intakes in vulnerable groups
LP Xin¹, PC Chhichhia¹, EC Rush¹, P Lucas¹, N Power¹

Centre for Physical Activity and Nutrition Research, Auckland University of Technology, Auckland, New Zealand

Background – Vitamin B₁₂ is only found in animal and yeast products, furthermore B₁₂ and folate are essential for cell division throughout life. A recent study of a folic acid fortified population with low maternal B₁₂ status during pregnancy, found the risk of neural tube defects almost tripled. Low B₁₂ status is related to adverse health effects in each stage of life.

Objectives – To investigate the validity of B₁₂ and folate intakes by dietary reports (24hrs recall and 7-day diet diary) against the biomarkers: serum B₁₂, folate, and holotranscobalamin II (Holo-TC, a specific marker for B₁₂).


Outcomes – In CNS2002, 0.7% of children reported avoiding all meat, 3.6% avoided red meat, and 1.5% avoided dairy food. The pilot study of six meat-eating and 6 non-meat-eating preadolescent Indian girls in Auckland showed two non-meat-eaters were low in serum B₁₂ (<170 pmol/L), while all participants had adequate folate status (range 23.0-30.8 pmol/L), and most participants exhibited low Holo-TC. Reported dietary B₁₂ and folate intake were correlated with blood status (r=0.74 and 0.72 respectively \( P<0.01 \)). The study in child-bearing-age women has not yet been completed.

Conclusion – An imbalance of diet low in B₁₂ with adequate folate, especially among non-meat-eaters, may lead to reduced health outcomes for future generations. B₁₂ status of vulnerable groups needs further investigation.