# Concurrent Session 5

## Effects of gamma-tocopherol supplementation on thrombotic risk factors and measures of oxidative stress

I Singh[1], AH Turner[1], AJ Sinclair[2], D Li[3], JA Hawley[1]
[1]*The School of Medical Sciences and*[2]*Department of Food Science RMIT University, Vic 3083*
[3]*Department of Food Science & Nutrition, Zhejiang University, China*

**Background -** The antioxidant activity of vitamin E is derived primarily from alpha-tocopherol (α-T) and gamma-tocopherol (γ-T). Gamma tocopherol has been found to be more effective in protecting against certain specific types of oxidative damage and reducing platelet activity.
**Objective -** This study sought to evaluate whether five weeks of supplementation with 100 mg/d or 200 mg/d γ-T would modulate lipid profile and platelet reactivity thus reducing oxidative and thrombotic markers *in vivo*.
**Design -** Fourteen healthy subjects consumed 100 mg/d γ-T and 13 subjects consumed 200 mg/d γ-T (Tama Biochemical Co. Ltd, Japan) while 12 were on placebo (soybean capsules with less than 5 mg/d γ-T) in a double blind parallel arm study. Fasting pre- and post-dose blood was analysed for lipid profile, platelet function tests, C-reactive protein (CRP) and antioxidant status.
**Outcomes -** Blood γ-T levels increased significantly ($P$ <0.05) relative to dose during the intervention period. The group taking 200 mg γ-T had significantly reduced total cholesterol and LDL ($P$ <0.05) and higher HDL ($P$ <0.05) than did the placebo group. Both active groups showed lower P-selectin expression for platelet activation post supplementation though the changes were not significant. No effect of γ-T was observed on total antioxidant status, triacylglycerols, CRP, platelet numbers and volume.
**Conclusion -** Five weeks supplementation with 100 and 200 mg γ-T significantly increased blood γ-T levels and in the case of the higher dose improved plasma lipid profile.
**Interest statement**: *This project was funded by The RMIT Virtual Research Institute (VRI) Grants Scheme 2004*

---

## Calcium supplementation for improving bone density in children: a systematic review

TM Winzenberg[1], K Shaw[2], J Fryer[1], G Jones[1]
[1]*Menzies Research Institute, University of Tasmania, TAS, 7001*
[2]*Department of Health and Human Services, Government of Tasmania, TAS, 7000*

**Background -** Trials of calcium supplementation in children have given inconsistent results particularly as to whether any benefit persists after supplementation is ceased.
**Objectives** - To determine the effectiveness of calcium supplementation for improving bone mineral density (BMD) in children and if any effect persists after cessation of supplementation.
**Design -** We performed a systematic review of randomised placebo-controlled trials of calcium supplementation in healthy children with bone mass at any site as an outcome. We searched multiple databases including Medline and Embase and used hand-searching to identify 234 potential studies. Assessment by 2 independent reviewers yielded 36 references to 19 studies. Of these, 18 provided data which could be used in meta-analysis.
**Outcomes -** Calcium supplementation has little effect on BMD at the hip or lumbar spine (see table). Total body bone mineral content (BMC) increases during supplementation but the effect does not persist. Upper limb BMD increases with supplementation and this persists after cessation. There was no significant heterogeneity at any site.

| Site | Effect at end of trial[1] | Effect at longest point after cessation of supplementation |
|---|---|---|
| Spine BMD | + 0.10 (- 0.02, + 0.22) (n = 1079) | - 0.01 (- 0.16, + 0.15) (n = 617) |
| Hip BMD | + 0.07 (- 0.05, + 0.20) (n = 988) | + 0.02 (- 0.14, + 0.18) (n = 617) |
| Total body BMC | + 0.14 (+ 0.01, + 0.27) (n = 953) | 0.00 (- 0.40, + 0.40)[2] (n = 96) |
| Arm BMD | + 0.21 (+ 0.11, + 0.31) (n = 1503) | + 0.18 (+ 0.05, + 0.32) (n = 840) |

[1]standardised mean difference (SMD) (95% CI); an SMD of 0.3 is regarded as small. Bold denotes statistical significance. N = number of participants included in each analysis; [2] single study only

**Conclusions** - Taken as a whole, this overview suggests calcium supplementation in childhood as a measure for improving long-term bone density is of marginal benefit at best.