

THE EFFECTS OF HIGH DOSE VITAMIN D SUPPLEMENTATION  
ON GLUCOSE METABOLISM AND INFLAMMATION  
IN OBESE ADOLESCENTS

Anthony Belenchia

Dr. Catherine A. Peterson, Thesis Supervisor

SHORT ABSTRACT

**Purpose:** The primary aim of this study was to determine the effects of improving vitamin D status through daily supplementation of 4000 IU would improve markers of glucose metabolism and inflammation in obese adolescents.

**Methods:** (age=14.2±2.6 years; BMI=39.2±5.9) were recruited from the University of Missouri-Adolescent Diabetes and Obesity clinic and were randomized to receive either placebo or vit D3 (4000 IU/day) as part of their standard treatment for 6 months. **Results:** After six months, subjects supplemented with vitamin D3 had significant changes in serum 25-hydroxyvitamin D concentrations (19.4 vs 3.8 ng/ml for placebo; P<0.001), HOMA-IR (-1.63 vs +0.27 for placebo; P=0.026) and QUICKI (+0.016 vs -0.004; P=.016). Additionally, the leptin:adiponectin ratio was reduced in vitamin D group versus placebo (-1.41 vs +0.10 P=0.45). No significant changes from baseline in inflammatory markers were detected between groups. **Conclusions:** Correcting the poor vitamin D status associated with obesity may be an effective and inexpensive adjuvant to treatment of obesity-related metabolic complications.