Posters

Extraordinarily low vitamin D content of fortified milk, milk based infant formula and powder milk

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**Background** - It has been reported that vitamin D deficiency diseases and low vitamin D levels do exist in Saudi Arabia in various sectors of the community in spite of abundance of sunlight.

**Objectives** - To measure the vitamin D content of milk, liquid yogurt, milk-based infant formula and powder milk.

**Design** - We have used a state of the art high performance liquid chromatography technique to achieve the objective of this research. The following samples were purchased randomly from supermarkets in various regions of the country, 60 containers of vitamin D fortified normal fat milk, 24 containers of non-fortified normal fat milk, 12 containers of fortified skimmed milk, 42 containers of fortified normal fat liquid yogurt, 30 containers of fortified low fat milk, 60 cans of fortified milk-based infant formulas, 30 cans of fortified and non-fortified milk powder.

**Outcomes** - Out of the 60 fortified normal fat milk samples as high as 60% (36 samples) contained amount of vitamin D far below the 400 IU/L stated on the label. Only 10% (six samples) contained 78% (312 IU/L) of added vitamin D, and 68% of the vitamin stated on the label. The vitamin D content of the 42 containers of fortified normal fat milk samples analyzed contained undetectable or very low vitamin D. Fifty percent of vitamin D fortified skimmed milk contained undetectable level of vitamin D, whereas the other 50% (six samples) contained 68% of the vitamin stated on the label. The vitamin D content of the 42 containers of fortified normal fat milk was as follow; 57% (24 samples) with undetectable level of vitamin D, and 28.5% (12 samples) contained vitamin D content in the range of 108% to 130% of the amount of vitamin D stated on the label. The rest of the samples contained 62% of the added vitamin D. In the 30 containers of vitamin D fortified low fat milk, only 10% (six samples) contained 82% of the added vitamin D, while the remaining 90% contained no or extremely low content of vitamin D in comparison to what is stated on the label. Only 10% (six cans) of infant formulas contained six percent of the amount of vitamin D stated on the label. Only two brands (12 cans) of milk powder were fortified with vitamin D and the content of this vitamin was in the range of 100% - 120% of the amount reported on the label.

**Conclusions** - Some milk and its derivatives produced in Saudi Arabia contained undetectable levels of vitamin D and are unlikely to improve the vitamin D nutritional status of the population.

Effective weight loss and maintenance strategies in polycystic ovary syndrome

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**Background** - Polycystic ovary syndrome (PCOS), a common endocrine condition in women of reproductive age, improves with weight loss but the optimal strategy for weight maintenance is unknown.

**Objective** - To assess the use of meal replacements as a weight loss strategy and the effects of carbohydrate or fat restriction on weight maintenance, reproductive and metabolic parameters in overweight women with PCOS.

**Design** - Overweight women with PCOS (n=43; age=32.1±5.2 years; weight=96.1±18.4 kg; mean±SD) followed an 8 week weight loss regime (2 meal replacements daily) followed by a carbohydrate (<120 g/day) or fat restricted (<50 g/day) weight maintenance regime for 6 months. Both dietary groups were followed up monthly and received advice on reducing the glycemic index and saturated fat content of their diet. Weight, waist circumference, body composition (bioelectrical impedance analysis), insulin, testosterone, sex-hormone binding globulin and free androgen index (FAI) were assessed at the beginning and end of each study phase.

**Outcomes** - Thirty two women completed the weight loss and 23 women completed the weight maintenance phase with similar dropouts in each diet group. During the weight loss phase, reductions in weight (5.6±2.4 kg), waist circumference (6.1±2.5 cm), body fat (4.1±2.2 kg), insulin (2.8±1.1 mU/L), testosterone (0.3±0.7 nmol/L) and FAI (3.1±4.6) (P<0.05) occurred. These changes were sustained during the weight maintenance phase with no differences between diet groups for any variables. At 6 months both approaches maintained a net weight loss of 4.7±4.6 kg. 2 pregnancies occurred during the weight maintenance phase (2 fat restricted) with 6.5 and 11.8 kg weight losses at estimated conception time.

**Conclusions** - In conclusion, meal replacements are an effective strategy for the short-term management of PCOS. Fat and carbohydrate restriction were equally effective in maintaining weight reduction.