

Thesis Title Effects of pumpkin seeds formula on the promoter and inhibitor of crystal formation or aggregation in urine of children with presumptive symptoms of bladder stone disease.

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Abstract

The effect of pumpkin seeds formula on the promoter and inhibitor of crystal formation or aggregation in urine of 28 children with presumptive symptoms of bladder stone disease were investigated. The pumpkin seeds snack formulated was Malet Fugthong Kwon which provided an average of 507.40 kcal, 21.16 g, 35.33 g and 660.45 mg per 100 g sample, for energy, protein, fat and phosphorus content respectively. The subjects were given Malet Fugthong Kwon either of 60 mg phosphorus per kilogram body weight or 800 and 1200 mg phosphorus for school-age children age 6-11 years and adolescent age 13-16 years respectively. The supplementation of pumpkin seeds formula was 2, 4, and 6 days. The mixture or milk base of the pumpkin seeds formula

also tested before receiving pumpkin seeds formula.

Twenty four hour urine was collected in these 2 group of subjects and analyzed for pH, calcium, oxalate, uric acid, phosphorus, pyrophosphate, glycosaminoglycan, citrate, magnesium, sodium, potassium and creatinine. The 24 hour urine volume and water intake were measured, while phosphorus intake was determined chemically. The age, body weight, height were recorded and used for anthropometric assessment.

The results indicated that upon supplementation of pumpkin seeds formula (Malet Fugthong Kwon), the phosphorus content in diet was increased more than 3 and 6 fold in school-age children and adolescent respectively. The level of inhibitors of crystal formation/aggregation especially phosphorus, pyrophosphate, glycosmainoglycan and magnesium were increased. While the promoters of crystal formation/aggregation did not show significant change. The occurrence of calcium oxalate crystals was decreased both in size and numbers. There were similar results in both group of subjects.

A positive correlation between total phosphorus intake and urinary phosphorus, glycosaminoglycan, magnesium and oxalate were demonstrated. Uric acid was closely associated with glycosaminoglycan.

It was suggested that this pumpkin seeds formula could be supplemented to the presumptive symptom of bladder stone children in order to minimize the risk of bladder stone.