

## Laparoscopic Adjustable Gastric Banding for Morbidly Obese Adolescents Effects Weight Loss without Impacting Bone Maturation.

Reddy S, Peck V, Ren CJ, Fielding GA, Nadler EP. Laparoscopic Adjustable Gastric Banding for Morbidly Obese Adolescents Effects Weight Loss without Impacting Bone Maturation. Surgery Section at the 59th Annual Meeting of the American Academy of Pediatrics, October 2007.

**Background:** Laparoscopic adjustable gastric banding (LAGB) has emerged as an effective weight loss strategy for morbidly obese adolescents. However, increased bone loss has been associated with some weight loss procedures, which would be of particular concern in the adolescent population. Restrictive procedures have not been linked to bone loss and therefore we hypothesize that bone mineral density (BMD) will appropriately increase with age and that certain serum markers for bone metabolism will remain stable in morbidly obese adolescents undergoing LAGB.

**Methods:** Patients ages 14-17 who have undergone LAGB at our institution since 2005 were reviewed. Data were collected at baseline and at one-year follow-up. Data abstracted included age, gender, weight, BMI, presence of co-morbidities, serum calcium and phosphate, serum intact PTH, serum Vitamin D 25(OH), lumbar spine bone mineral density and z score by dual-energy X-ray absorptiometry (DEXA).

**Results:** Ten females and 7 males had DEXA evaluation at our institution pre-operatively and at least one year after LAGB. Mean pre-operative age was  $15.9 \pm 1.0$  years, weight was  $332.7 \pm 130.5$  lbs, and BMI was  $49 \pm 6$ . At one year, weight and BMI were  $224.6 \pm 56$  and  $36 \pm 7$  respectively, with a percent excess weight loss (%EWL) of  $50 \pm 18$ . There was an age appropriate increase in BMD (Table) There were no significant changes in serum calcium, phosphate, PTH, Vitamin D (data not shown).

**Conclusions:** LAGB in morbidly obese adolescents effects significant weight loss without impeding age-appropriate bone maturation as evidenced by DEXA. Furthermore, none of the serum markers for bone metabolism studied were altered one-year after surgery. Long term follow-up is necessary, however these preliminary data suggest concern regarding bone loss after LAGB in adolescents is unwarranted.

	Weight (lbs)	BMI (kg/m <sup>2</sup> )	%EWL	BMD	z-score
<b>Baseline (n=17)</b>	332.7 ± 130.5	49 ± 6	-	1.23 ± 0.17	0.6 ± 1.1
<b>1-year (n=17)</b>	224.6 ± 56	36 ± 7	50 ± 18	1.29 ± 0.14	0.8 ± 1.1
<b>P value (t-test)</b>	<0.001	<0.001	-	0.02	0.1