1. SAFETY AND EFFICACY OF GASTRIC BYPASS IN PATIENTS 65 YEARS AND OLDER. RoseMarie Toussaint, MD; Robert T. Marema, MD; Cynthia K. Buffington, PhD

Background:
Bariatric surgery for the elderly is debatable. We have studied the safety and efficacy of surgical weight loss in gastric bypass (GBP) patients > 65 years (y) of age.

Methods:
The study population included 77 morbidly obese (MO) patients > 65y, i.e. BMI = 45.9+6.5 (S.D.), weight = 128.6+22.7 kg, body fat = 49%. Laparoscopic GBP was performed on 47 patients and 30 had an open procedure. Anthropometrics, including body mass index and body composition (bioelectric impedance), were measured preoperatively and at weight loss nadir.

Results:
GBP caused significant changes ($p<0.0001$) in anthropometrics of the MO patients > 65y, along with highly significant ($p<0.0001$) improvement in their vitals and co-morbidities. GBP was not as effective in inducing weight loss in patients > 65y than for patients < 65y, i.e. % change weight loss = 34% and 44%, respectively. Such age-associated differences in surgical efficacy apparently occurred secondary to a decrease in loss of fat mass by the > 65 y patients (change fat mass = 52% vs. 63% for the > 65y vs. < 65y patients, respectively) and changes in lean tissue were similar (19% vs. 18%). As regards safety, there were few age-related differences in major complications. Mortality rates were higher for the > 65y MO patients than for our large series of GBP patients, i.e. 1.3% vs. 0.23%, respectively.

Conclusion:
GBP is less effective in reducing weight and decreasing body fat in patients > 65y. The procedure, however, is relatively safe for the older patients and is highly effective in improving their health status.

2. UNREALISTIC WEIGHT LOSS EXPECTATIONS IN CANDIDATES FOR BARIATRIC SURGERY. Perry Kaly, PhD; Susan Orellana, BA; Curtis Takagishi, PhD; Lisa Koche, MD; Michel Murr, MD

Background:
Unrealistic expectations of weight loss are prevalent in obese patients and may negatively impact adherence with dietary and health goals. We sought to examine weight loss expectations and perceived notions about weight loss in candidates for bariatric surgery.

Methods:
124 consecutive patients were surveyed using a validated Goals and Relative Weights Questionnaire prior to an educational seminar. The participants categorized their weight loss expectations as “dream”, “happy”, “acceptable” and “disappointed”, and rated the effect of weight loss on 21 indicators related to health, quality of life, social functioning, and self-image on a 1-10 scale. Data are presented as mean±SD.

Results:
101 women and 23 men (age: 45±10 years; BMI: 50±7 kg/m2) stated that their “dream” weight is 89±7% excess body weight loss (EWL), and that 77±9%, 68±9%, and 50±13% EWL are their “happy”, “acceptable”, and “disappointed” weights, respectively. Participants ranked health, fitness, body image, work performance, and self-confidence as the most important benefits of bariatric surgery. Women had higher “happy” and “acceptable” weight loss expectations, and more emphasis on physical presence (Pearson-r, $p<0.01$). Younger patients had more emphasis on attractiveness, and improvements in social and sex life after bariatric surgery (Pearson-r, $p<0.01$).

Conclusion:
Candidates for bariatric surgery understand its benefits but have unrealistic expectations of weight loss. The most modest weight loss expectation, the “disappointed” weight, is equivalent to what is considered a successful weight loss outcome by physicians. Setting realistic expectations is an important aspect of preoperative evaluation and education, especially with younger women.

3. A MULTIDISCIPLINARY APPROACH TO CARE DECREASES THE INCIDENCE OF PRESSURE ULCERS IN BARIATRIC SURGERY PATIENTS. Jolie Blankenship, RN, CWOCN; Jill Meador RN, BSN; James W. Maher, MD; John M.Kellum, MD; Katie Hudson, RN, CWOCN; Luke Wolfe, MS

Background:
Bariatric surgery patients are high risk for development of pressure ulcers and skin complications.

Methods:
Retrospective review of 5 years bariatric surgery patients at VCU Medical Center and pressure ulcer incidence was conducted. Pre-operative weight, type of surgery, presence of diabetes and/or hypertension, re-operation for complications, ICU management, and history of smoking were assessed in patients with skin breakdown status post bariatric surgery.

Results:
Since January 2000, 1511 bariatric surgeries (lap, open, revision, conversion lap-open, lap attempts) have been performed at VCU Medical Center. Incidence of pressure ulcers was 0.9% (n=14). Detailed examination of pre-operative co-morbidities, re-operations and ICU admission within this sub-group was conducted. Findings were as follows: 14% (n=2) had hypertension; 14% (n=2) had diabetes; there were no smokers in this group. 71% of those who developed pressure ulcers had re-operation (n=10) and 93% had ICU admission (n=13). In 2004, management protocols for bariatric surgery

patients were revised to include: improvement in equipment in OR and on nursing units, consistent OR nursing staff, pre-admission assessment for bariatric bed with utilization of bariatric beds upon admission to pre-operative holding, daily skin assessment and monitoring by nurse practitioner, earlier ambulation post op, and detailed ongoing staff education. Since implementation, no skin breakdown has occurred in any patients, including those with re-operation and/or ICU admission.

Conclusion:
Implementation of a comprehensive program to assess for and prevent pressure ulcers in the bariatric surgery patients may improve outcomes and decrease incidence of skin complications.

4. EXERCISE PHYSIOLOGISTS IMPACT PATIENTS EXERCISE HABITS AND PERCENT EXCESS WEIGHT LOSS. Arrin C Fleck, NSCA-CPT, Melissa Davis, RN, MSN, CNS; Jennefer Kieran, MD; Robin Blackstone, MD, FACS

Background:
Background. Exercise is essential to weight loss and optimal health. This study examined the influence an exercise physiologist (EP) has on patients' exercise habits and percent excess weight lost after laparoscopic gastric bypass and LAPBAND surgeries.

Methods:
Methods. Patients who had surgery from May 13, 2003 through August 24, 2004 (n=250) were mailed a survey that included the patients' pre and postoperative exercise habits as well as the amount of exercise and current regimen. The survey also inquired about the use of personal trainers, attendance of fitness centers and support groups. Exercise physiology was incorporated into the program after November 20, 2003.

Results:
Results. Eighty patients responded. These patients were divided into two groups based on the inclusion of the EP into the clinical pathway. Group A (N=36) did not interact with the EP before or after surgery other than support groups. Group B (N=44) did meet with the EP both before and after surgery as well as interacted at support classes. Group A had surgery between the dates of May 13, 2003 and November 20, 2003. At one-year post op, both groups had an average of 80% excess weight loss. Group B had 48% of patients exercising prior to surgery, increasing to 93% currently. Group A had 39% of patients exercising prior to surgery, increasing to 83% currently.

Conclusion:
Conclusion. These findings suggest that interaction with an exercise physiologist both before and after surgery may influence patients' weight loss and promote a stronger commitment to an exercise regime.

5. ATTAINMENT OF A MINIMAL LEVEL OF PHYSICAL ACTIVITY (PA) ENHANCES PHYSICAL AND MENTAL QUALITY OF LIFE (QOL) IMPROVEMENTS AMONG FEMALE GASTRIC BYPASS SURGERY (GBS) PATIENTS. Dale S Bond, PhD; Ronald K Evans PhD; Luke G Wolfe, MS; Jill G. Meador, RN; James W. Maher, MD; John M. Kellum, MD

Background:
Despite numerous studies demonstrating QOL improvements following GBS and the relationship between QOL and PA in the general population, no study has examined QOL in relation to GBS patients' attainment of minimal levels of PA. Therefore, this study examined differences in QOL changes among minimally physically active (MPA) and inactive female patients before and after GBS. The MPA group was predicted to report greater improvements in physical and mental QOL than the inactive group.

Methods:
The SF-36v2 and International Physical Activity Questionnaire (IPAQ) were used for assessment of QOL and classification of MPA and inactive groups in 115 female GBS patients. Repeated measures ANOVA examined group differences regarding type and rate of QOL improvements from 2-weeks pre-surgery to 3-months post-surgery. One-way ANOVAs assessed group differences at each time period.

Results:
A significant time by MPA effect was observed across all SF-36v2 measures and dimensions except the bodily pain dimension. Post-hoc findings indicated that the MPA group reported significantly higher SF-36v2 scores than the inactive group on both the physical ($p=<.0001$) and mental ($p=.0426$) component summary measures, and all individual dimensions ($p=<.01$) at 3-months post-surgery. No significant QOL differences between groups were observed at pre-surgery.

Conclusion:
GBS patients who engage in even minimal levels of PA soon after surgery may experience a higher perceived level of physical and mental functioning and well-being than inactive GBS patients. The findings highlight the importance of the inclusion of a structured PA component within a comprehensive surgical weight loss program.

6. IMPACT OF INSURANCE COVERAGE ON BARIATRIC SURGERY CASE VOLUME AND SELF-PAY VOLUME IN SOUTH FLORIDA. Cristina Sori, CPT; Jorge LSosa, MD

Background:
After the decision by Blue Cross/Blue Shield of Florida to deny coverage for bariatric surgery other insurers have also dropped coverage. We anticipated this would result in a total decrease in bariatric procedures and an increase in patients paying out of pocket for the procedure. We analyzed our database to determine if this is occurring.

Methods:
We examined our prospective database on gastric bypass cases. We compared three time periods: 1st time period: June-July 2002-2003; 2nd time period: June-July 2003-2004; and 3rd time period: June-July 2004-2005. We compared number of cases, change in case volume, percentage of self-pay patients, and change in self-pay patients.

Results:
In the 1st time period there were 308 cases total and 30 were self-pay (10%). In the 2nd time period there were 267 cases (a 13% drop in volume) and 67 were self-pay (25%) (a 223% increase in self-pay). In the 3rd time period there were 221 cases (a 28% drop in volume compared to 1st time period) and 96 were self-pay (43%) (a 320% increase in self-pay compared to 1st time period).

Conclusion:
When insurance companies stop bariatric surgery coverage there is a modest decrease in total number of procedures performed with a marked increase in self-pay patients. Insurance companies are thus shifting the cost of bariatric surgery directly to patients, then reaping the benefits of a slimmer healthier patient population that will incur less medical expenses in the future. It's a win-win position for the insurers and one they are not likely to give up voluntarily.

7. PROCESS IMPROVEMENTS ASSOCIATED WITH INCREASED PATIENT PARTICIPATION IN FOLLOW-UP CARE.

Rebecca D Anderson, PhD; Therese Meyer-Cox, PhD

Background:
Complication risks continue into the late post-surgical period after gastric bypass surgery. Modifiable patient behaviors play a strong role in the development of many of these complications. For these reasons, long-term, multidisciplinary follow-up care after bariatric surgery is considered a critical component of an effective, quality program, yet many programs struggle with achieving patient participation. Empirically-supported strategies for maximizing patient participation after surgery are needed.

Methods:
A retrospective chart review was performed on 100 consecutive patients who underwent gastric bypass surgery at our institution from 9/01/2002 through 8/30/2005. Following several process improvements, the number of patients completing at least one follow-up appointment within six months of surgery with each discipline was calculated and compared with pre-process change data. Follow-up with surgery, nutrition, physical therapy and psychology were tracked. Process improvements involved pre-operative education, informed consent, increased phone contacts with post-surgical patients, implementation of a computerized database for tracking patient visits, and proactive, assertive scheduling techniques.

Results:
There were no significant differences between the patient groups in terms of demographic variables. Seventy-four patients completed post-surgery follow-up prior to implementation of the process improvements. Their rates of follow-up participation were as follows: Surgeon: 100%; nutrition: 73%; physical therapy: 62%; psychology: 47%. Twenty-six patients completed their follow-up activity after the process changes. Their rates of participation improved as follows: Surgeon: 100%; nutrition: 92%; physical therapy: 65%; psychology: 81%.

Conclusion:
Specific changes in processes involving patient education, informed consent, tracking and scheduling led to increased participation in follow-up care.

8. GASTRIC BYPASS REVISIONS – THE GEORGE WASHINGTON UNIVERSITY EXPERIENCE.

Christine L Carter, PH.D, Paul P Lin, MD, Juliet Lee, MD, Denise A Johnstone, MSNCRNP

Background:
Weight loss surgery (WLS) is a rapidly growing field. Revision of previous bariatric procedures are common, but associated with high anastomotic leak rates. We present our data on revision gastric bypass surgery and report on our operative technique, complication and mortality rate and success at secondary weight loss.

Methods:
The Roux-en-Y gastric bypass has been our procedure of choice. A retrospective chart review of our database yielded 47 patients who were referred to us for revision surgery. The majority of the gastric bypass revisions have been performed by one surgeon (PPL).

Results:
Of the 47 patients undergoing revision Roux-en-Y gastric bypass, 38 ere female and 9 were male. Indications for revision included failure of previous restrictive or bypass procedures as manifested by weight gain, malnutrition, GI bleeding, and intractable abdominal pain. All patients underwent open Roux-en-Y gastric bypass as their revision procedure. At the time of 67.9 and BMI of±revision, patients had an average weight of 269.2 lbs. 10.9. At three and six months post revision, their average weight±43.9 loss was 32.6% and 67.9% of excess weight. The 30-day surgical mortality was 0% and the anastomotic leak rate was 4.3%.

Conclusion:
Revision gastric bypass surgery is a safe operation in the hands of experienced surgeons who are facile in both open and laparoscopic techniques. We recommend that the Roux-en-Y gastric bypass be the gold standard for first time as well as revision surgery. These revisions can be done safely, and have the same efficacy as initial weight loss surgery.

9. THE ESTABLISHMENT OF A NATIONAL BARIATRIC SURGERY PREGNANCY REGISTRY (NBSPR). Daniel T Dempsey, MD; Victoria Frain MSN, CRNP; Dawn Stepnowski, MSN,CRNP; Christopher Kowalski, MD; John E Meilahn, MD; Carol Fisher, BS; Emil Popa, MD

Background:
Significant weight loss following bariatric surgery in women may correct hormonal imbalances associated with obesity-induced infertility. Pregnancy following bariatric surgery may result in maternal and/or fetal nutritional deficiencies. The purpose of this study is 1)to describe our experience with pregnancy in a retrospective series of 757 female bariatric surgery patients of childbearing age and 2)to introduce the establishment of the NBSPR at our institution.

Methods:
Analysis of childbearing female bariatric patients between 2000 and 2005 included demographics and medical, surgical and obstetrical histories.

Results:
757 females of childbearing age were identified in our bariatric surgery population. 25 patients(age 24-39), became pregnant 3-32 months following their bariatric procedure. 17 patients(68%) conceived within the first 18 postoperative months. To date, 17 patients delivered 18 babies. Preoperative BMI was 53±10 (mean±SD). All pregnant patients lost weight during the first trimester; BMI at term was 38±8. 14 patients with anemia and/or hypoalbuminemia had normal birth weight babies(>5 lbs); 3 patients without anemia or hypoalbuminemia had low birth weight babies(<5 lbs). There were 11 C-sections and 1 premature birth(20 weeks).

Conclusion:
In our experience, some patients became pregnant relatively soon after bariatric surgery despite counseling against it, and the nutritional status of the mother may not correlate with the nutritional status of the baby. To fully understand the effects of bariatric surgery on pregnancy and maternal-fetal health, large numbers of patients must be studied. Thus the establishment of a NBSPR is important and the logistics of this national database will be discussed.

10. LAPAROSCOPIC GASTRIC BYPASS AND LAPAROSCOPIC ADJUSTABLE GASTRIC BANDING PATIENTS HAVE TASTE CHANGES AND FOOD AVERSION POSTOPERATIVELY. David S Tichansky, MD; Raymond J Taddeucci MD; Atul K Madan, MD

Background:
Many patients describe taste changes following bariatric surgery. This change and its influence on eating is not quantified. Our hypothesis is most patients develop food aversions and this is the major influence guiding eating habits.

Methods:
Postoperative laparoscopic gastric bypass patients (GB) and gastric banding patients (LAGB) completed an IRB-approved survey querying their degree and type of taste change and food aversion and its influence on eating. Analysis was performed by Fisher's Exact tests.

Results:
110 patients participated. 24 surveys were not adequately completed. 65 GB and 21 LAGB were included. 85% GB and 52% LAGB(p=0.004) reported taste change. 43% GB and 36% LAGB reported an overall taste loss(p=ns). 100% LAGB versus 60 % GB also characterized a decrease in taste intensity(p=0.007). 74% GB and 60% LAGB(p=ns) find certain foods repulsive. 67% GB and 63% LAGB(p=ns) believed the change was more than expected preoperatively. 59% GB and 27% LAGB(p=ns) eat less because it doesn't taste good. 91% GB and 82% LAGB(p=ns) are simply not hungry. LAGB are more likely than GB to develop an increased taste for sweet foods(64%vs.27%, p=0.03). GB are more likely than LAGB to develop increased taste for salty foods(58%vs.18%, p=0.02). 30% LAGB versus 57% GB(p=ns) feel this change effected their weight loss.

Conclusion:
The majority GB and LAGB have taste change and food repulsion. More LAGB develop increased taste for sweet foods. More GB develop increased taste for salty foods. A higher percentage of GB felt the change effected weight loss. Procedural differences in taste change and subsequent eating exist.

11. LAPAROSCOPIC ADJUSTABLE GASTRIC BANDING: CAN IT BE DONE SAFELY IN AN OUTPATIENT SETTING? Dorothy R Ferraro, MS, CS, AN; Staci Stone RD, CDN; Daniel G Davis, DO; Amna Daud, MD, MPH; Marc Bessler, MD

Background:
Laparoscopic adjustable gastric banding (LAGB) is the least invasive bariatric procedure. The aim of this study was to assess the safety and feasibility of performing LAGB as an ambulatory procedure.

Methods:
Between August 2003 and August 2005, 124 patients underwent LAGB as an outpatient. Short-term complications were evaluated.

Results:
: There were 92 females and 32 males, with mean age of 34.4 (19-67) years and mean initial Body Mass Index (BMI) of 45.5(35-70) kg/m2. Co-morbidities included hypertension (n= 47), diabetes mellitus (n=17), hyperlipidemia (n=40), GERD (n=43) and osteooarthritis (n=23). Mean operating time (induction of anesthesia to patient leaving OR) was 91 (61-148) minutes and mean length of stay was about 7(2-26) hours. There was 1 (0.8%) major complications (band infection and removal) requiring re-admission and re-operation within 30 days of surgery.

Conclusion:
Our experience demonstrates that LAGB may be performed on an ambulatory basis with a low risk of complications and need for readmission

12. CHANGES IN QUALITY OF LIFE AFTER GASTRIC BYPASS. Donna Marin, RN; J. Chris Eagon, MD

Background:
Quality of life (QOL) is an important outcome in gastric bypass (GBP). Our aim was to measure changes in QOL over time after GBP and determine what preop factors are predictors of postop QOL.

Methods:
The SF36 questionnaire was administered to 97 patients preoperatively, six months, and one year following GBP at our institution. Changes in QOL subscales over time were determined. The influence of prospectively collected preop clinical variables and comorbidities on postop QOL was then determined using t-test and correlation analysis.

Results:
Self-reported QOL improved dramatically in all subscales at both 6 months and one year. One year changes in QOL were not influenced by preop diabetes, hypertension, GERD, osteoarthritis, or asthma. Laparoscopic patients had a higher QOL score in role-physical than open patients. Preop depression was associated with lower QOL scores in physical functioning, general health, vitality, and mental health. There was no correlation between preop weight or BMI and preop QOL. At six months high preop BMI patients had higher general health and mental health scores than low preop BMI patients. However, preop BMI was negatively correlated with one year postop physical functioning, general health, vitality, and mental health.

Conclusion:
GBP results in dramatic increases in QOL but this effect is blunted by preop depression. High BMI patients, after a transient greater general and mental health benefit, report less QOL benefit at one year than low BMI patients.

13. ETHNIC DIFFERENCES IN PSYCHOSOCIAL RESPONSE TO MORBID OBESITY AMONG AFRICAN AMERICAN AND CAUCASIAN FEMALES. Heidi Cherwony, PsyD; Robert T..Marema, MD; Cynthia K. Buffington, PhD

Background:
African American females with morbid obesity are more obese than Caucasians. In our study, we examined various psychosocial issues of African American and Caucasian females in an effort to identify reasons for ethnic differences in obesity prevalence.

Methods:
The study population included 50 weight-matched African American and Caucasian pre-surgical patients. Psychosocial status was assessed using the Minnesota Multiphasic Personality Inventory-2, Millon Behavioral Medical Diagnostic, and Beck Depression Inventory-II.

Results:
We found no significant ($p>0.05$) differences between the ethnic groups with regard to age, obesity onset, years of education, marital status, eating behavior, or exercise habits. There were also no significant ($p>0.05$) ethnic differences in depressive symptoms, coping styles, stresses, previous abuse, addictive behavior, or substance use. The psychosocial status of African American females, however, was far less affected by the morbidly obese state than that of the Caucasian women. African American females, in comparison to their Caucasian counterparts, had significantly ($p<0.05$) greater self-confidence, were more social, energetic, forceful, and spiritual, and tended to express their feelings more openly and honestly. In contrast, the Caucasian females with morbid obesity felt denigrated ($p<0.01$) and were more likely to require psychotropic medication ($p<0.05$).

Conclusion:
Morbidly obese African American women have significantly fewer psychosocial issues associated with their morbid obesity than equally obese Caucasians which may account, in part, for their greater obesity prevalence and could interfere with long-term weight loss success.

14. PSYCHOSOCIAL CORRELATES OF WEIGHT LOSS IN BARIATRIC SURGERY. Donna Marin, RN; Juan Perrone, MD; J. Chris Eagon, MD

Background:
Psychological counseling of bariatric patients was recommended by the NIH to avoid adverse psychological outcomes and promote patient compliance. It is unclear whether psychosocial parameters correlate with weight loss outcomes. Our aim was to determine the correlation between preoperative behavioral and quality of life variables and weight loss outcome after gastric bypass.

Methods:
Preoperative SF-36, Beck Depression Inventory (BDI) and Binge Eating Disorder (BED) questionnaires were administered to 112 patients undergoing Roux-en-Y-gastric bypass (RYGBP) at our institution. Weight loss (WL) and percent excess weight loss (%EWL) were determined at 1 year follow-up. Pearson and Spearman correlation coefficients were determined between preop psychosocial variables and weight loss.

Results:
Patients had an average preop BDI of 19+-11 (Mean+-SD) and BES of 23+-7, and all SF-36 subscales were well below US norms. Patients achieved an average weight loss of 122 pounds or 72%EWL. Preop reported physical functioning was positively correlated with WL (Spearman r = 0.235) but not with %EWL. Role-emotional was negatively correlated with WL (Spearman r = -0.202) but not with %EWL. There was a trend toward a negative correlation between the BES and WL (Pearson r = -0.195). The preop BDI and other subscales of the SF-36 did not correlate with either WL or %EWL.

Conclusion:
Higher scores in preop physical functioning and lower scores in role-emotional are associated with greater degrees of absolute WL after RYGBP. There is a trend toward bingers having lower WL. None of these psychosocial factors affect %EWL at one year.

15. RESTING METABOLIC RATE SHOWS SIGNIFICANT DECREASE IN POSTOPERATIVE GASTRIC BYPASS PATIENTS AND IS BEST MEASURED BY INDIRECT CALORIMETRY. Heather L Gustafson, RD; Andrea D. Lola RD; Christopher J. Larson, PA-C, RD; Michelle AMathiason, MS; Pamela J Lambert, RN; Shanu N. Kothari, MD

Background:
Accurately estimating resting metabolic rate (RMR) is helpful in counseling patients for weight management issues after gastric bypass surgery. The objective of this study was to measure the RMR in laparoscopic gastric bypass patients (LGB) utilizing Medgem and compare these results to the predicted Harris Benedict equation (HB).

Methods:
RMR was measured using the Medgem, an FDA-approved device (HealtheTech, Inc.) and calculated using the HB equation. Measurements were taken at the pre-operative visit, following standard Medgem protocol and at the one-year postoperative visit. Patients utilized for this study had surgery from May 2004 to October 2004. Student's T-test analysis was used.

Results:
: 20 patients (15 female, 5 male)

Medgem (kcal) Harris-Benedict (kcal) p-value for comparisons

Preoperative 2260.5 (range 1510-3210) 2234.6 (range 1794-3412) 0.702

1yr postoperative 1539.6 (range 980-2130) 1658.6 (range 1362- 2469) 0.043

Change 720.9 (range 100-1610) 576.1 (range 234-1049) 0.029

%Change -32% -26%

p-value for change <0.001 <0.001

Conclusion:
The mean RMR change was statistically significant between pre and postoperative visits in the LGB patients. When compared to the Megem device, the HB overestimated RMR in one-year postoperative patients. Calorie recommendations based on HB may result in difficulty with weight maintenance long-term in gastric bypass patients.

16. ZINC AND SELENIUM DEFICIENCY AFTER WEIGHT LOSS SURGERY. Meredith Urban-Skuro MS, RD; Amna Daud MD, MPH; Mary F. Digiorgi, MPH; Nancy Restuccia, MS, RD; William B. Inabnet, MD; Beth Schrope, MD; Marc Bessler, MD

Background:
Vitamin and mineral deficiencies including Fe, B12, and vitamin D have been reported after bariatric procedures. These deficiencies can result from the effect of surgery, inadequate supplementation or poor intake of foods rich in these nutrients. Zinc and selenium are important trace elements primarily absorbed in the duodenum. We hypothesized that zinc and selenium would become more deficient after operations that bypass the duodenum. We report on zinc and selenium levels in patients who underwent Gastric Bypass (GB) or Laparoscopic Adjustable Gastric Banding (LAGB).

Methods:
Zinc and selenium levels were collected on 107 patients (82 GB and 25 LAGB) who underwent weight loss surgery at our Center between December 2003 and May 2005. These levels were obtained pre operatively and 3, 6 and 12 months post operatively.

Results:
At baseline, 7.4% of bariatric surgical candidate were deficient in zinc and 6.5% were deficient in selenium. 25.8% of GB patients had low levels of zinc

and 15.2% of patients had low levels of selenium by 12 months. The LAGB patients also demonstrated low zinc and selenium levels by 12 months, 28.6% of patients had low zinc and selenium levels.

Conclusion:
Appropriate testing should be obtained pre- and post-operatively. Both zinc and selenium deficiencies are more prevalent after banding and bypass versus baseline. Bypass of the duodenum is an unlikely cause of deficiency given these findings. Other possible causes are inadequate intake or supplementation. Evaluation of levels and appropriate supplementation is indicated in post-op bariatric patients.

17. IMPLICATION OF METABOLIC EFFICIENCY FOR WEIGHT LOSS AND MAINTENANCE IN A CLINICAL SETTING. Debbie L Daley, MS; Justine C. Strauss EP; Robert T. Marema, MD; Cynthia K. Buffington, PhD

Background:
Energy balance is critical for weight loss maintenance. We have studied changes in weight loss in association with energy balance in morbidly obese (MO) patients following bariatric surgery and have examined such changes with regard to energy balance.

Methods:
The study population included 28 MO laparoscopic adjustable gastric band patients whose body compositions were determined via bioelectric impedance. Resting energy expenditures were assessed with indirect calorimetry and 24-hour dietary recalls were examined prior to and over the course of one year post-surgery.

Results:
Preoperative anthropometrics were as follows: BMI = 44.96+0.90; fat mass = 66.2+2.57 kg; fat free mass = 62.5+1.9. Preoperative calorie intake, resting energy expenditure (REE), total energy expenditure (EE) averaged 2701+168, 1847+71, and 2401+92 kcal/d, respectively, yielding a positive energy balance of 300 kcal/d. Surgery led to a 20% reduction in total body weight with a 31% loss of body fat and 9% decrease in lean mass over the course of one year. Calorie intake declined by 59% and REE by 32%. Energy balance averaged a negative 577 kcal/day. Although an energy deficit was calculated, changes in weight loss at one year postoperatively were minimal.

Conclusion:
These findings suggest that the high metabolic efficiency of the morbidly obese allow for adaptation to reduction in energy intake and that an increase in energy expenditure must be realized for continued weight loss and/or maintenance. Practice implications advocate the need for patients to understand the importance of daily exercise, diet composition and meal timing for weight loss success.

18. INCREASED RISK OF SECONDARY HYPERPARATHYROIDISM IN AFRICAN AMERICAN AFTER LAPAROSCOPIC GASTRIC BYPASS SURGERY. Christian R Ketel, NP, MSN; Jennifer G. Ginnings, RN; Yassar K. Youssef, MD; Nikhilesh R. Sekhar, MD; Joan l. Kaiser, RN, MSN; William O. Richards, MD; Alfonso Torquati, MD, MSCI

Background:
Metabolic bone disease is a potential complication of bariatric surgery. It is often undiagnosed, because of lack of physician and patient awareness. Abnormalities in parathyroid hormone (PTH) levels and vitamin D metabolism begin shortly after bariatric surgery; however, clinical evidence of metabolic bone disease may not be detected until years later. The aim of the study is to determine if African Americans patients have a higher risk to develop secondary hyperparathyroidism (HPT).

Methods:
Nested case-control study of 30 consecutive African American women who underwent laparoscopic gastric bypass (LGB) matched to a cohort (n=30) of Caucasian women who underwent LGBs at the same institution. Controls were matched to the cases for age, BMI, and roux-en-y limb length. Serum calcium, alkaline phosphatase, PTH, and vitamin D were measured at 3, 6, 12 and 24 months after LGB in these two cohorts. Logistic regression was used to predict the increased risk of secondary HPT in African Americans.

Results:
During the 2 years follow up period, the incidence of secondary HPT (PTH > 65 pg/ml) was 70% (21/30) in African Americans and 36.6% (11/30) in matched Caucasian (P=0.01). African Americans become more Vitamin D deficient than their Caucasian counterparts (23.6±12.6 vs 39.2±21.6 ng/ml, P=0.001). African Americans were at more than four times greater risk to develop secondary HPT than Caucasian (RR 4.0; 95% CI: 1.3-11.8, P=0.01).

Conclusion:
African Americans have a higher incidence of postoperative secondary HPT. Earlier vitamin D replacement and increased calcium citrate supplementation should be at least implemented for African Americans.