

## **Pre-Operative Weight, BMI and the Incidence of Obesity Co-Morbidities Vary by Sex in Bariatric Surgery Patients: Analysis of 166,601 Women and Men with Obesity**

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**Background:** Variations in pre-operative characteristics by sex in procedure specific bariatric surgery cannot be easily extrapolated from current literature. With all surgical practices now operating on obese patients, additional clinical insight aids in the peri-operative decision-making process. Objective: to identify pre-operative variations between bariatric surgery women and men across the surgical spectrum.

**Methods:** Data from 166,601 pre-operative Surgical Review Corporation BOLD patients undergoing LRYGB (n=83,059), OpenRYGB (n=5389), LAGB (n=67,514), SLEEVE (n=8,966), or BPD/DS (n=1,673) were divided in two groups: Women (n=130,612) and Men (n=35, 989). Statistics: Chi-square and ANOVA.

**Results:** Pre-operative clinical results from female and male bariatric surgery patients are displayed in the Table. Female/Male age (45+-12/48+-12 years), weight (124+-22/153+-29 kg) and BMI (46+-8/48+-8) were greater in men ( $p<0.0001$ ). Cardiopulmonary obesity co-morbidities (hypertension, CHF, sleep apnea, angina, DVT/PE, ischemic heart disease, peripheral vascular disease, pulmonary hypertension, obesity hypoventilation syndrome, and impaired functional status), diabetes, gout, and dyslipidemia affected more men, while asthma was higher in females ( $p<0.0001$ ). Among abdominal/hepatobiliary issues, abdominal hernia and liver disease rates were higher in men, but women suffered more from GERD, cholelithiasis, stress urinary incontinence, and abdominal panniculitis ( $p<0.0001$ ). The somatic obesity co-morbidities back pain, fibromyalgia, musculoskeletal pain, and pseudotumor cerebri, and mental health conditions were more common in women ( $p<0.0001$ ). Alcohol, tobacco use and substance abuse were higher in men ( $p<0.0001$ ). Of the 31 weight-related problems examined, only lower extremity edema did not vary between men and women.

**Conclusion:** Pre-operative weight, BMI, and weight-related medical problems vary by sex across the spectrum of bariatric surgery procedures. Men are older, heavier, drink, smoke, and use drugs more frequently than women, and experience higher rates of diabetes, gout, dyslipidemia, cardiopulmonary obesity co-morbidities except asthma, abdominal hernia and liver disease. Among women with obesity, rates of asthma, GERD, cholelithiasis, stress urinary incontinence, abdominal panniculitis, somatic and mental health obesity co-morbidities were increased versus men. With this advance clinical knowledge, surgeons managing patients with obesity can anticipate obesity co-morbidities for both sexes. The resulting raised index of suspicion by surgeons regarding patients with morbid obesity could facilitate increased pre-surgical preparation and better outcomes in the peri-operative period.