# Bariatric surgery in the morbidly obese and the improvement in stress urinary incontinence: A retrospective chart review

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**Abstract**. Obesity in America is reaching epidemic stages. An underlying co-morbidity of obesity is stress urinary incontinence. Purpose: The purpose of this study was to examine the relationship between bariatric surgery in the obese patient and changes in their stress urinary incontinence. Methods: This retrospective chart study looked at 89 patients who had reported some level of urinary incontinence prior to bariatric surgery. Patients' levels of incontinence, body mass indices (BMI), and weights were measured before surgery and at 4, 8, 12 weeks, 6 months, 1, 2, 3, and 4 years after surgery. Of the 89 subjects, 100% reported some level of urinary incontinence prior to surgery. All subjects were women (age 46 $\pm$ 22 years) and all underwent gastric bypass surgery. Results: Of the 89 patients, 63% showed some improvement or resolution in their incontinence after 4 weeks. Of the 78 reporting patients 89% showed resolution of incontinence at 1 year. Conclusion: Bariatric surgery reduced the prevalence of urinary incontinence. One hundred percent of the patients with stress urinary incontinence before surgery eventually reported some improvement or resolution of their symptoms after having the surgery. However, reductions in excess body weight and BMI showed no significant relationships with improvements or resolution of urinary incontinence.

## 1. Introduction

Obesity in America is close to reaching epidemic stages. Nearly two-thirds of the population in America is overweight (BMI $\geq$ 25kg/m$^2$) or obese (BMI $\geq$ 30kg/m$^2$) [1]. The percent of Americans at a healthy weight has dropped from 51.2% in 1960 to 32.9% in 2002 [2]. In 1988, the percent of children ages 6 to 18 who were considered obese was 4.6%. In 2002, that percentage was up to 17% [2]. It has also been estimated that 27% of United States health care costs are related to obesity, overweight, and a lack of physical activity [3].

This increase in obesity means that health care providers are seeing more patients each year with weight concerns and weight-related problems. Overweight and obesity are associated with a variety of co-morbidities that include: osteoarthritis, hypertension, gastroesophageal reflux, stress urinary incontinence, depression, diabetes, asthma, congestive heart failure, stroke, and cancer [4]

One underlying co-morbidity of obesity that affects 30-40% of obese patients is stress urinary incontinence [5]. Stress urinary incontinence is defined as the state in which an individual experiences a loss of urine of less than 50 mL occurring with increased abdominal pressure [6]. Recent studies have shown varying levels of improvement in urinary incontinence after bariatric surgery [7,8].

In this study we examined obese patients with urinary incontinence to evaluate the level of improvement in their symptoms after bariatric surgery.

## 2. Methodology

This retrospective chart review was administered through the Department of Physician Assistant at Wichita State University.

All participants had participated in the Solutions for Life Surgical Weight Management Program at Via Christi Regional Medical Center in Wichita, Kansas. Only patients who met the following criteria were included: patients must have reported some level of urinary incontinence prior to surgery and bariatric surgery must have been performed.

Each patient was surveyed about their level of urinary incontinence at an initial meeting. Patients were asked if they had experienced stress incontinence, what year it was diagnosed, and the frequency of incontinence. Additional measures included BMI, percent of excess weight loss, and patients' levels of stress urinary incontinence Measurements were taken at initial meetings and

followed up post-surgery through surveys at four and eight weeks, and one, two, three, and four years. Patients were asked to evaluate their post-surgical urinary incontinence as "resolved," "improved," "no change," or "worse."

**3. Results**

All patients who had urinary incontinence and had undergone a gastric bypass procedure experienced improvement in their stress urinary incontinence over time (up to 4 years post-surgery). After four weeks 21% of the 89 patients experienced some improvement in their urinary incontinence, whereas 35% reported resolution of their incontinence. After six months, 74% of patients reported improvement or resolution of their incontinence.

At one year post-surgery, 17% of patients reported some improvement in their incontinence and 60% reported total resolution of incontinence.

While improvement and/or resolution of urinary incontinence occurred in the majority of patients, this study showed that there was no strong correlation to either percentage of excess weight loss or to specific levels of decrease in an individual's BMI. Some patients had gained weight at differing times after their bariatric surgery and still reported an improvement in their urinary incontinence.

Table 1
Changes in urinary incontinence after surgery

| | Percent of Patients | | | | |
|---|---|---|---|---|---|
| | Improve | Resolve | No Change | Worse | # of patients |
| 4 weeks | 21 | 35 | 14 | 1 | 89 |
| 8 weeks | 23 | 47 | 8 | 1 | 88 |
| 6 month | 14 | 60 | 1 | 1 | 84 |
| 1 year | 17 | 69 | 4 | 1 | 78 |

**4. Discussion**

It has been proposed that urinary incontinence may be due to extra intra-abdominal pressure created by excess weight in the abdomen and pelvis [9]. It stands to reason that a loss in the extra weight carried by patients after gastric bypass surgery could be correlated to a decrease in the incontinence from which they suffer. However, this study showed that there was no strong correlation to either percentage of excess weight loss or to specific levels of decrease in an individual's BMI.

A similar study recently found that eighty-two percent of patients in their study showed improvement or resolution in urinary incontinence symptoms, but no correlation between preoperative/postoperative BMI or percentage of excess body weight loss with improvement of urinary incontinence could be found [7]. Neither could formally tie the relief of incontinence to a decrease in intra-abdominal pressure.

One possible explanation for this result in our study is that the questionnaire was an unverified self-report of patient incontinence. Another possible explanation is that the intra-abdominal pressure that is thought to cause the stress urinary incontinence is not the true driving force behind patient's incontinence.

**4. Conclusion**

While 100% of patients who suffered from stress urinary incontinence eventually experienced improvement or complete resolution of their symptoms after gastric bypass surgery, this improvement did not correlate with a specific amount of weight lost or a specific decrease in BMI. Therefore, health care professionals can show that by following established guidelines for post-surgery management of weight, they will experience some improvement in their urinary incontinence.

Additional research of specific urodynamic functioning due to obesity and subsequent weight loss due to gastric bypass surgery could provide a better understanding of why increased weight is associated with urinary incontinence, and why any amount of weight loss after surgery seems to improve or resolve patients' symptoms.

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