

**OBESITY**  
**BENEFITS OF**  
**BARIATRIC SURGERY**

Bariatric surgery reduces long-term cardiovascular events and deaths according to results from the prospective, nonrandomized Swedish Obese Subjects (SOS) study. Obesity is associated with increased cardiovascular morbidity and mortality; however, although weight loss reduces various risk factors for cardiovascular disease, it has also been associated with a paradoxical increase in the incidence of cardiovascular events in most epidemiological studies.

Researchers in the SOS study aimed to investigate the long-term effects of bariatric surgery. Between September 1987 and January 2001, they enrolled 2,010 patients with obesity who underwent bariatric surgery (68.1% vertical-banded gastroplasty, 18.7% nonadjustable or adjustable banding, 13.2% gastric bypass) and 2,037 matched individuals with obesity who received the standard treatment at their health-care center in Sweden (which ranged from advanced lifestyle advice to no treatment). Obesity was defined as BMI  $\geq 34$  kg/m<sup>2</sup> in men and  $\geq 38$  kg/m<sup>2</sup> in women. The median follow-up was 14.7 years.

After 2, 10, 15, and 20 years, the mean change in body weight was -23%, -17%, -16%, and -18% in the surgery group, and 0%, +1%, -1%, and -1% in the control group, respectively. Cardiovascular deaths were significantly reduced in the bariatric group compared with controls (HR 0.47, 95% CI 0.29–0.76,  $P=0.002$ ). First-time cardiovascular events (fatal or nonfatal myocardial infarction or stroke) were also decreased with surgery (HR 0.67, 95% CI 0.54–0.83,  $P<0.001$ ).

Unexpectedly, no relationship between degree of weight loss and reduction in incidence of cardiovascular events was detected in the surgery group; however, the study might have been underpowered to detect such a correlation. Alternatively, after a moderate amount of weight loss induced by bariatric surgery, subsequent weight reduction might not confer further risk reduction. The SOS study group has previously reported associations between bariatric surgery and favorable, long-term changes in cardiovascular risk factors, quality of life, diabetes mellitus, cancer, and mortality; the extent to which these changes are independent of surgically induced weight reduction requires further study.

Gregory B. Lim

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