

Significant weight-loss from surgery decreases risk for cardiovascular disease in women

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Significant weight loss not only improves daily life of morbidly obese woman but also decreases the risk for cardiovascular disease (CVD). However, many people can not lose weight or can not maintain weight loss without help. Bariatric surgery is emerging as a valuable procedure to help morbidly obese individuals lose weight, as studies have shown; it can improve many health profiles and lower mortality.

Now, researchers have found another positive impact of significant weight loss after bariatric surgery: it can significantly improve the lipoprotein profiles of women within a year following surgery. This study, conducted by a team of scientists from Tufts University, the University of California-Davis and Oregon Health and Sciences Center, appears in the August Journal of Lipid Research.

Bariatric surgical procedures, such as gastric bypass surgery, have been shown to be an effective intervention to help individuals with morbid obesity lose weight and maintain the loss. Studies on people who have undergone the procedure have found that in addition to facilitating physical weight loss and lowering body fat, bariatric surgery also improves other health parameters, including heart rate, hypertension, and insulin sensitivity, and often result in resolution of type 2 diabetes.

Another area that is correlated with obesity and is a significant heart disease risk is the concentration of <u>lipoproteins</u> -the cholesterol-



containing LDL/HDL and related molecules—in the blood.

However, the effect of bariatric surgery on key lipoprotein markers for CVD has not been thoroughly investigated.

So, Bela Asztalos at Tufts' Human Nutrition Research Center and his colleagues analyzed the plasma samples for a number of lipids and lipoproteins and other markers for CVD in 19 obese female volunteers who underwent gastric bypass surgery prior to and after one year following surgery, as well as in samples from19 age-matched lean female control subjects. As expected, the baseline concentrations of triglycerides, glucose and insulin were significantly higher in obese than in normal-weight women, whereas HDL-cholesterol and apolipoprotein A-I levels were significantly lower.

Following an initial reduction of HDL at one month post surgery, most likely resulting from an early marked negative energy balance, plasma lipids and lipoproteins changed beneficially over the course of the year. Eventually they showed significant improvements comparable to individuals taking statin drugs (concentration of total HDL -C increased by nearly 25% while the large, cholesterol-rich α -1 HDL particles, inversely associated with risk for CVD in previous studies, increased by as much as 177% over baseline levels). These increases coincided with reductions in body mass index, body adiposity, plasma triglycerides, and the LDL/HDL ratio. It is worth noting that the improvements of the HDL profile were significantly correlated with the improvements in glucose homeostasis indicating that lipid and glucose metabolisms are closely linked.

The authors note this initial investigation into the effects of weight loss/bariatric surgery on HDL remodeling does have some limitations, including that the observed improvements may not be applicable to men without further studies in male patients. Neither did the study track post-



surgery diet, exercise and alcohol intake. However, this study does seem to indicate that beyond the decreases of body weight and fat mass, and the known beneficial effects on insulin sensitivity and glucose metabolism, weight loss/bariatric surgery can improve a number of lipid parameters associated with cardiovascular health and decreased risk for CVD in these weight-reduced patients.

More information: "Effects of weight loss, induced by gastric bypass surgery, on HDL remodeling in obese women" by Bela F. Asztalos et al. <u>doi: 10.1194/jlr.P900015-JLR200</u>

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