# Initiative Aims At Understanding Physiological Changes Of Bariatric Surgery

Ethicon Endo-Surgery, Inc. (EES) recently announced it has renewed its research collaboration agreement with the University of Cincinnati (UC) and its Metabolic Diseases Institute (MDI). The three-year, $13.5M grant extension, is part of the EES Metabolic Applied Research Strategy (MARS), which also includes research from GI Metabolism Laboratory and Weight Center at the Massachusetts General Hospital (MGH).

The MARS initiative is aimed at improving the understanding of the physiological changes resulting from bariatric surgery. EES will highlight findings and potential implications of this research from both institutions this week at the annual meeting of the American Society for Metabolic and Bariatric Surgery (ASMBS).

With an estimated 300 million adults worldwide categorized as clinically obese , the overarching goal of the MARS initiative is to develop additional, less invasive treatment options and improved outcomes for people with obesity. Current surgical intervention options for patients with obesity have been shown to resolve Type II diabetes in a significant number of patients (78 percent of gastric bypass patients and 73 percent in banding patients ) and may result in weight loss of 81 percent of their excess weight as early as 12 months after surgery.  However, these techniques have resulted in weight loss that exceeds the amount expected based on reduced caloric intake alone. MARS research is underway to explain this discrepancy.

At UC’s MDI, Randy Seeley, Ph.D. is leading efforts aimed at increasing the understanding of why other metabolic procedures, such as vertical sleeve gastrectomy (VSG) and laparoscopic greater curvature plication (LGCP), work. Including this new grant, the EES MARS initiative has invested more than $33M with UC and the GI Metabolism Laboratory and Weight Center at the MGH, where Lee Kaplan, M.D., Ph.D., is leading research into understanding the mechanisms of action in Roux-en-Y gastric bypass surgery.

This past Sunday, Seeley presented data and findings, which stem from the MARS initiative, on the mechanism of action of VSG during an educational course for physicians attending ASMBS,  illustrating a greater understanding of how the procedure impacts physiological factors contributing to body weight regulation and resolution of co-morbid conditions. Also at ASMBS, EES will highlight research from the GI Metabolism Laboratory and Weight Center at the MGH during a presentation and educational event.

“If we can truly understand the physiology behind how bypass surgery works, we can leverage this knowledge to create less invasive devices and procedures,

creating a variety of weight loss options," said Dr. Kaplan, director of the GI Metabolism Laboratory and Weight Center at the MGH. "Finding ways to 'bypass the bypass' is a very exciting area of research that we hope will deliver options that are well suited for the large percentage of obesity sufferers who aren't currently receiving treatment."

Preliminary MARS results have been, and will continue to be, shared this year at several diverse clinical and scientific conferences. Recently, data were presented at Digestive Disease Week (DDW) 2010 by researchers from the GI Metabolism Laboratory and Weight Center at the MGH that demonstrated Roux-en-Y Gastric Bypass (RYGB) accelerated an increase in circulating levels of certain bile acids following meals. Because these bile acids have previously been shown to activate thermogenesis (the production of heat) in muscle and brown adipose tissue, the researchers concluded that this accelerated response from patients who have undergone RYGB may be linked to the increased energy expenditure. This conclusion provides valuable insight into how RYGB works and may lead researchers to novel treatments that are less invasive but still deliver both weight loss and metabolic improvements.

"Ethicon Endo-Surgery is committed to collaborating with clinicians to develop new, comprehensive bariatric solutions while also ensuring that people with obesity have access to current treatment options that can help them achieve sustained weight loss and reduce co-morbidities," said Karen Licitra, group Chairperson, Ethicon Endo-Surgery. "Due to the incredible research being performed at institutions such as UC and MGH, the MARS program is yielding very exciting results that are changing our understanding of how bariatric surgery works.  We strongly believe continued efforts in this area will dramatically improve our collective ability to treat obesity and metabolic diseases."

1 World Health Organization. Global Strategy on Diet, Physical Activity and Health. 2003. 2 Buchwald, H. et al. Weight and Type 2 Diabetes after Bariatric Surgery: Systematic Review and Meta-analysis. *American Journal of Medicine.* 2009; 122(3): 205-206. 3 Dixon, JB et al. Adjustable Gastric Banding and Conventional Therapy for Type 2 Diabetes. *Journal of the American Medical Association.* 2008; 299(3): 316-323. 4 Wittgrove, AC, et al. Laparoscopic Gastric Bypass, Roux-en-Y: Technique and Results in 75 Patients With 3-30 Months Follow-up. *Obesity Surgery* 1996: 6, 500-504

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