

Ileal interposition improves Glucose Tolerance and Insulin Resistance in Otsuka Long-Evans Tokushima Fatty rats.

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Backgrounds: Ileal interposition (IT) is an operative procedure in which the distal ileum is transposed isoperistaltically into the proximal jejunum and considered as a procedure for metabolic or anti-diabetic surgery. Our aim was to study the effects of IT on glycemic control, fat metabolism, and hormonal changes in obese rats with spontaneous diabetes (OLETF rats). **Methods:** Animals were divided into either an IT or a sham (SH) group. They underwent oral glucose tolerance test (OGTT) before, 4, and 8 weeks after the operation. All animals were killed 10 weeks after operation for analyses of tissue weight (liver, pancreas, epididymal fat, brown fat) and fasting plasma levels of glucose, insulin, glucagon-like peptide (GLP)-1, peptide YY (PYY), glucose-dependent insulintropic polypeptide (GIP), and leptin. **Results:** After operation, body weight increased in both groups compared to their preoperative weight, but it did not differ between IT and SH. At 8 weeks postoperatively, integrated blood glucose levels during the OGTT were decreased in IT compared to SH ($p < 0.05$). Ten weeks after operation, fasting plasma levels of insulin, GLP-1, and GIP did not differ between the two groups, but PYY levels were greater in the IT group ($P < 0.01$). Weight of epididymal and brown adipose tissues, homeostasis model assessment insulin resistance, and fasting plasma leptin levels were decreased in the IT group ($p < 0.05$). **Conclusions:** These results suggest that IT improves glucose and lipid metabolism by decreasing blood glucose, insulin resistance, and epididymal fat, increases in plasma PYY might be one of the mechanisms of these changes.