

Obese visceral adipose tissue grafted in lean mice can alter glucose homeostasis and energy efficiency

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Fat transplantation experiments have previously shown regulatory properties of lean adipose tissue on glucose homeostasis in the whole animal. In the current study, we addressed whether obese visceral white adipose tissue grafted in lean mice could alter glucose homeostasis. Obese visceral fat (VF) tissue was effective in increasing body weight gain and energy efficiency but not energy intake, when transplanted into the epididymal VF depot in lean recipient mice. These changes were accompanied by impaired glucose and insulin tolerance tests, showing altered glucose homeostasis. None of these effects were observed when transplants were grafted subcutaneously. These effects show that both physiologic state of donor VF (obese vs lean) and graft location (epididymal vs subcutaneous) in the recipient animal are critical to express deleterious effects of VF on glucose homeostasis in the whole organism. Copyright © by BIOLIFE, s.a.s.