

Understanding how we get fat: Dietary regulation of adipogenesis

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We are in the midst of a global obesity epidemic; however, the cause of this recent widespread increase in adiposity remains a matter of debate. Our lab recently identified and characterized the adipocyte cellular lineage *in vivo*. Directed studies of the regulation of the adipocyte precursors *in vivo* have shown that within some fat depots adipocyte precursors are transiently activated at the onset of obesity, leading to an increase in the number of adipocytes and adipose mass. Furthermore, we have demonstrated that the mechanism of precursor activation is specific to the obese state. Here we show that high fat diets high in oleic acid, such as lard-based diets, result in adipocyte hyperplasia, while high fat diets low in oleic acid, such as coconut oil, do not stimulate increases in adipocyte number and gain less weight. Oleic acid is also sufficient to activate adipocyte precursors *in vivo* and stimulates adipogenesis *in vitro*. These findings suggest that the recent, drastic changes in types of fats in our diets have directly contributed to increased obesity rates.