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Diabetes. 1994 Nov;43(11):1271-8.

Tumor necrosis factor alpha: a key component of the obesity-diabetes link.

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Abstract

Recent data have suggested a key role for tumor necrosis factor (TNF)-alpha in the insulin resistance of obesity and non-insulin-dependent diabetes mellitus (NIDDM). TNF-alpha expression is elevated in the adipose tissue of multiple experimental models of obesity. Neutralization of TNF-alpha in one of these models improves insulin sensitivity by increasing the activity of the insulin receptor tyrosine kinase, specifically in muscle and fat tissues. On a cellular level, TNF-alpha is a potent inhibitor of the insulin-stimulated tyrosine phosphorylations on the beta-chain of the insulin receptor and insulin receptor substrate-1, suggesting a defect at or near the tyrosine kinase activity of the insulin receptor. Given the clear link between obesity, insulin resistance, and diabetes, these results strongly suggest that TNF-alpha may play a crucial role in the systemic insulin resistance of NIDDM. This may allow for new treatments of disorders involving resistance to insulin.

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Publication Types, MeSH Terms, Substances

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