

Metabolic effects of IL-6

The metabolic effects of IL-6 are pleiotropic and context dependent, leading to numerous, highly-reproduced studies indicating both positive and negative outcomes.

Finding	References
Circulating levels of IL-6 are increased in obese subjects and correlate with metabolic disease risk	1-9
IL-6 induces insulin resistance in endothelial cells, hepatocytes, and mouse and human adipocytes	10-15
IL-6 acutely enhances insulin signaling in muscle	11,16
IL6 (transgenic or recombinant) induces insulin resistance in vivo	10,17-19
<i>IL-6^{-/-}</i> mice have impaired glucose tolerance	20-22
<i>IL-6^{-/-}</i> mice have unaltered insulin sensitivity	23,24
<i>IL-6^{-/-}</i> mice have improved insulin sensitivity	25
Neutralizing IL-6 improves insulin sensitivity in obese mice	17,26-28
Neutralizing IL-6 does not alter insulin sensitivity in obese mice	29,30
IL-6R α deficiency in liver or myeloid cells induces systemic insulin resistance in mice	31,32
Hepatic gp130 deficiency is associated with increased susceptibility to steatohepatitis in mice	33
Blockade of IL-6 trans signaling in mice prevents obesity-induced adipose tissue inflammation but does not alter insulin resistance	29
IL-6 infusion does not alter insulin sensitivity in patients	34,35
IL-6 infusion activates lipolysis in patients	36
Antibody mediated IL-6 neutralization causes dyslipidemia in patients	37
Antibody-mediated IL-6 neutralization improves metabolic homeostasis in patients	38,39

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