

TXNIP may mediate insulin sensitivity in caloric restriction

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(HealthDay)—Caloric restriction (CR) improves peripheral insulin sensitivity, possibly by lowering insulin-stimulated thioredoxin-interacting protein (TXNIP) levels and enhancing non-oxidative glucose disposal, according to a study published online Aug. 31 in *Diabetes*.

Matthew L. Johnson, Ph.D., from Mayo Clinic College of Medicine in Rochester, Minn., and colleagues examined the underlying mechanism whereby CR improves [insulin sensitivity](#) in [obese individuals](#). In 11 obese participants, the authors examined the effect of 16 weeks of CR on whole-body insulin sensitivity by pancreatic clamp before and after CR compared with a matched control period (nine participants).

The researchers found that CR increased the [glucose](#) infusion rate needed to maintain euglycemia during hyperinsulinemia, compared with

control, indicating enhancement of peripheral insulin sensitivity. Improved insulin sensitivity was not associated with changes in skeletal muscle mitochondrial oxidative capacity or oxidant emissions, nor with changes in skeletal muscle ceramide, diacylglycerol, or amino acid metabolite levels. Lower insulin-stimulated TXNIP levels and enhanced non-oxidative glucose disposal were seen with CR.

"These results support a role for TXNIP in mediating the improvement in peripheral insulin sensitivity after CR," the authors write.

More information: [Abstract](#)
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