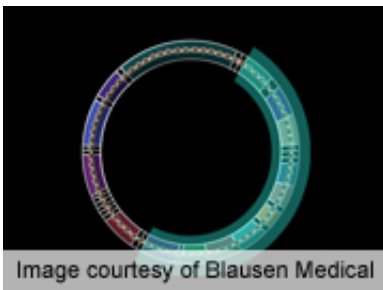


Exercise ups mitochondrial biogenesis in adipose tissue

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(HealthDay)—Exercise training increases mitochondrial biogenesis, mitochondrial DNA (mtDNA) content, and glucose uptake in the subcutaneous adipose tissue of wild type, but not endothelial nitric oxide synthase (eNOS) knockout mice, according to research published online March 12 in *Diabetes*.

Elisabetta Trevellin, Ph.D., of the University of Padua in Italy, and colleagues conducted studies in mice and cell cultures of murine and human adipocytes to investigate the effects of exercise on mitochondria and glucose metabolism in adipose tissue.

The researchers found that swim training resulted in *in vivo* effects of increases in mitochondrial biogenesis, mtDNA uptake, and glucose uptake in [subcutaneous adipose tissue](#) of wild type, but not eNOS

knockout, mice. *In vitro* studies showed that treatment with a [nitric oxide](#) donor stimulated mitochondrial biogenesis and elongation as well as [glucose uptake](#) and GLUT4 translocation in cultured murine and human adipocytes.

"These results point to the crucial role of the eNOS-derived nitric oxide in the metabolic adaptation of subcutaneous adipose tissue to exercise training," the authors write.

More information: [Abstract](#)
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