

Effects of dietary nitrate on metabolic efficiency and modulation of mitochondrial function.

Filip Larsen, GIH/Karolinska Institutet, Sweden

An increasing amount of research is suggesting that nitrate, found in high concentrations in green vegetables, can be reduced in vivo to bioactive nitric oxide. Several studies now show that administration of nitrate to humans improve the efficiency of energy transduction and reduces the oxygen cost required to perform a fixed amount of muscular work. The mechanistic basis of this improvement in metabolic efficiency can be traced down to modulation of mitochondrial function by differential regulation of mitochondrial proteins which reduces mitochondrial uncoupling. Further, the effects of nitrate administration are not limited to the mitochondria but also seem to have effects on contractile structures in the cell.