



## Diabetes, High Fat Diet and Lack of Exercise

---

Epidemiological studies show that lack of exercise and diets rich in saturated fats are associated with peripheral insulin resistance and type 2 diabetes development. High fat diets lead to intramuscular accumulation of lipids. In sports persons with a high physical activity, these lipids are directly accessible to mitochondria for energy supply. But in individuals at risk for obesity and in the elderly, the accumulated lipids induce insulin resistance in the muscle cells. This insulin resistance was considerably increased when a lack of exercise was associated with a high-fat diet as compared to a high-carbohydrate diet. Increases in the intracellular concentration of fatty acid metabolites following accumulation of lipids, have been postulated to activate a cascade of enzymatic reactions (serine kinase cascade) leading to insulin resistance and the risk of type 2 diabetes.

**For more information, please read the entire article:**

*Rodriguez Stettler, Michael Ith, Kevin J. Acheson, Jacques Décombaz, Chris Boesch, Luc Tappy and Christophe Binnert. Interaction between dietary lipids and physical inactivity on insulin sensitivity and on Intramyocellular lipids in healthy men. Diabetes Care 28: 1404-1409, 2005.*