Fats and Insulin Sensitivity!!

When Atkins first introduced low carb diets, he said that you can eat as much protein and fat as you want, just minimize carbs. People were eating steaks, fried chicken, bacon, pork, and other foods high in saturated fats. By tweaking your low carb diet from saturated fats to mono and polyunsaturated fats you may see enhanced fat loss. Diets high in saturated fats are associated with insulin resistance. According to experimental data, FAs may act directly in insulin sensitive tissues, including adipocytes, liver, and skeletal muscle (probably by affecting mitochondrial biogenesis and activity), as well as affecting adipokine production. Researchers have now realized that the fat content of diet affects insulin sensitivity. Insulin sensitivity tends to correlate with weight loss and insulin resistance is thought to be an adaptation to prevent further fat/weight gain. Substituting saturated fats with mono and polyunsaturated fats enhances fat loss. Fish oils (PUFA's) may enhance fat loss by suppressing gene for fat storage. For example, in contrast to saturated FAs (SFAs), polyunsaturated FAs (PUFAs) suppress lipogenic gene expression, partly by binding and activating nuclear receptors such as peroxisome proliferators activated receptor (PPAR)-g. Many diabetic drugs increase insulin sensitivity by increasing PPAR activity; however dietary manipulation of fat can also do this as well. In most of these experiments, PUFAs as linoleic acid (fish oils) suppress lipogenic genes and enhance oxidative metabolism, whereas SFAs, palmitic acid in particular, have an opposite effect. Besides fish oils, diets rich in monounsaturated fats (olive oil, macadamia nut oil) also can enhance fat loss. In a randomized controlled crossover study in 25 healthy individuals, researchers compared diets high in saturated and monounsaturated fats. Diets were isocaloric and consumed for 4 weeks, and all diets were prepared in a metabolic kitchen. SFAs reduced insulin sensitivity (24% reduction) compared with MUFAs. Another study of interest, the largest controlled study so far and therefore probably the most important, is the KANWU study. This multicentre study included 162 healthy individuals recruited in five different countries. Participants received isocaloric diets only differing in fat quality, with a SFA diet (17E% SFA) and a MUFA diet (23E% MUFA), and a total fat intake of 37%. The main finding was that substituting SFAs with MUFAs improved insulin sensitivity. Taken together, the available data suggest that substituting SFAs with either MUFAs or PUFAs has beneficial effects on insulin sensitivity. Many bodybuilders have reported enhanced fat loss with Macadamia nut oil; this oil boasts a higher percentage of monounsaturated fat than even olive oil. Specifically, it also results in lower cholesterol levels which is an added health benefit.

-Risérus U. Fatty acids and insulin sensitivity. Curr Opin Clin Nutr Metab Care. 2008 Mar;11(2):100-5. Review.