

# Polyunsaturated Fats May Stave Off Diabetes



By Lila Abassi — April 1, 2016



Prediabetes via Shutterstock

Lifestyle modification is the cornerstone of diabetes prevention. Individuals that are deemed prediabetic can either delay the onset of diabetes, (the [annual conversion rates](#) <sup>[1]</sup> are around 5 to 10 percent) or they can revert back to normal blood glucose levels a similar amount of the time. Weight loss is by far the most effective way to reduce one's risk of developing diabetes.

A [study](#) <sup>[2]</sup> published in *PLOS One* examined the effects of dietary fats, such as unsaturated acids (UFA), monounsaturated acids (MUFA) or polyunsaturated acids (PUFA), on fasting blood glucose (FBG) levels and two-hour glucose tolerance tests (2hPG) – clinical criteria that used to diagnose diabetes.

Previous studies have suggested that saturated fats promote the development of cholesterol plaques in arteries, while unsaturated fats do not.

A dietician-led research team from King's College, London found that diets high in saturated fatty acids – as confirmed by composition of fatty acids in subjects' red blood cell membranes – had elevated FBGs and 2hPGs. The converse findings were true for diets containing mostly PUFA or trans-fats.

Analysis of the red cell membranes from participants' blood samples provided an indirect and objective confirmation of the subjects' fatty acid consumption. Dietary studies typically rely on dietary questionnaires, which are less reliable. The findings indicated that SFA play a detrimental role in hepatic insulin sensitivity and decreased response of tissues to the actions of insulin — both hallmarks of Type 2 diabetes.

Is this a ground-breaking study?

Probably not. But it does provide further evidence that dietary modifications from SFA to MUFA/PUFA will address the underlying pathophysiological abnormality of prediabetes — reduced insulin sensitivity.

The [current recommendation](#) <sup>[3]</sup> for treating pre-diabetes is lifestyle modification, however, individuals who are considered "high-risk" such as those who are less than 60 old, have a body

mass index of 35 (morbidly obese) or more, or women who had diabetes during pregnancy, can be prescribed Metformin (the first choice oral diabetes medication).

To diagnose [prediabetes](#) [4] one of the following lab values has to be elevated but not enough so to put it into the diabetic range: (1) Hemoglobin A1c, (2) FBG, or (3) 2hGT. Most clinicians choose HbA1c because it's easier, it doesn't require patients to fast and/or have to go through a glucose challenge, which is unpleasant, and can take up to three hours.

The HbA1c (glycated hemoglobin) is a reflection of the average blood glucose values over the span of 2-3 months. Since [2009](#) [5], it has been common practice to diagnose diabetes (values of 6.5 or higher) or prediabetes (5.7 to 6.4) using HbA1c alone. However, this is [problematic](#) [6] because HbA1c values are a poor marker of important underlying abnormalities of diabetes — the body's abnormal response in processing glucose. Prediabetes is associated with the simultaneous presence of insulin resistance and  $\beta$ -cell dysfunction (cells in the pancreas that secrete insulin), abnormalities that start before glucose changes become detectable.

An important question is how to manage individuals whose A1c is in the prediabetic range, but don't meet the criteria for treatment with Metformin. If patients are slapped with a diagnosis (based on one lab value that may not be accurate), they will often want a prescription for medication to fix it. But, for prediabetes, this would be inappropriate. Not only would millions of people needlessly be exposed to a medication that has side effects, but the cost associated with treating all these newly diagnosed prediabetics would be very high.

Diabetes is scary, and people are generally aware of the myriad complications associated with the disease. However, if we start over-diagnosing every Tom, Dick and Harry with pre-diabetes (according to the CDC there are 86 million of them in the U.S.) then we should be prepared to deal with the many people who will not settle for a prescription of lifestyle modification.

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#### Links

[1] <http://www.ncbi.nlm.nih.gov/pmc/articles/PMC3891203/>

[2] <http://journals.plos.org/plosone/article/asset?id=10.1371%2Fjournal.pone.0150148.PDF>

[3] <http://europepmc.org/abstract/med/26741685>

[4] <http://www.diabetes.org/diabetes-basics/diagnosis/?referrer=https://www.google.com/>

[5] <http://www.niddk.nih.gov/health-information/health-topics/diagnostic-tests/a1c-test-diabetes/Pages/index.aspx>

[6] [http://care.diabetesjournals.org/content/34/Supplement\\_2/S184.full](http://care.diabetesjournals.org/content/34/Supplement_2/S184.full)