

Sugar-Damaged in the Lipid Nutrition Cycle

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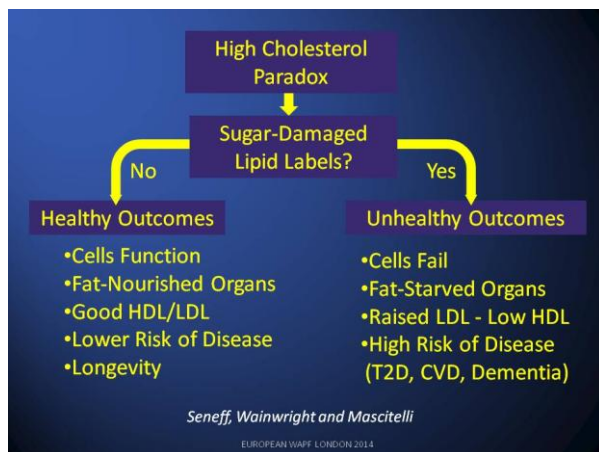
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Maybe raised total blood serum cholesterol (TBSC) was trying to tell us something about health, but it was not the message we have been fed for the last 60 years.

Cholesterol has been misrepresented since the 1950s as a cause of heart disease. In reality an excess of dietary sugar that created an unhealthy lipid profiles in our blood stream. Attempts to fix the problem by a drug called a statin added to our health woes because it targets the wrong issue.

When LDL nutrition is sugar-damaged (Glycated LDL) is raised in the blood. Unrecognised by our fat starved organs it is eventually scavenged by less discriminating visceral fat stores. There is less HDL (erroneously called 'good' cholesterol) being returned by the organs.

High Cholesterol (high levels of total blood serum cholesterol TBSC) when caused by damage to the LDL lipid parcels is a sign that lipid circulation is broken. These fats (LDL) will be scavenged to become visceral fats, deposited around the abdomen. This type of damage is associated with poor health.



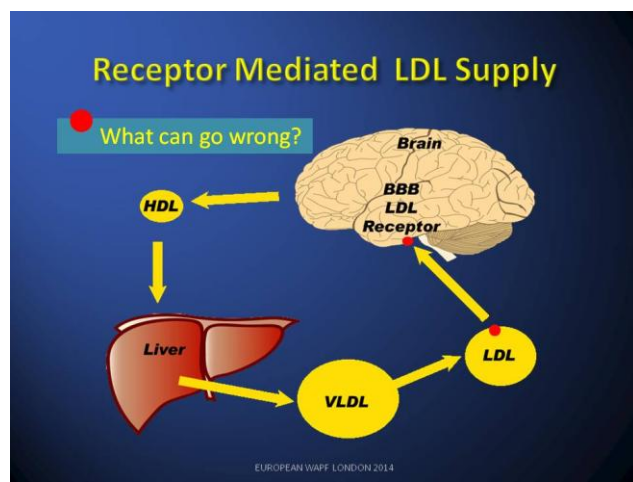
Preventing the liver from producing new undamaged LDL by using a statin fails to address the problem of getting fatty nutrients to fat starved organs. The action of statins adds to the patients musculo-skeletal and neurological woes by depleting vital supplies of CoQ10 and dolichol.

The problem is fixed by reducing sugar-damage - as measured by an HbA1c test on sugar damage to a blood protein called

haemoglobin. Several diabetes clinicians have observed this key connection between sugar damage and poor lipid profiles.

A Healthy Lipid Nutrition Cycle

If the total blood serum cholesterol (TBSC) is high and the organs are getting enough lipids, the blood lipid circulation is healthy. The large parcels of fatty nutrients (LDL lipids) sent by the liver are

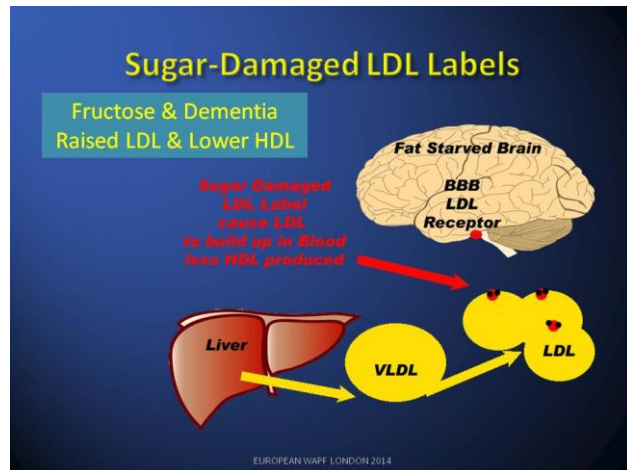


consumed by our organs (receptor-mediated endocytosis) and the smaller fatty wrappers and left-over lipids (HDL Lipids) return to the liver. The Fatty Nutrients (LDL) and the recycled lipids (HDL) are in balance. Such a healthy-lipid 'High-Cholesterol' person is well nourished and likely to have a long and healthy life.

Sugar-Damage in a Broken Lipid Cycle

If the total blood serum cholesterol is high but the fatty nutrient droplets (LDLs) have sugar-damaged labels, the organs are unable to recognise and feed on them. The supply of fatty nutrients to organs is broken.

The liver continues to supply fatty nutrients (albeit with damaged LDL labels), but the organs' receptors are unable to recognise them. The organs thus become starved of their fatty nutrients. Like badly labelled parcels in a postal service, the sugar-damaged lipids build up in the blood (raised LDL) and fewer empty wrappers are returned to the liver (low HDL).



So it really doesn't matter how high your total blood serum cholesterol (TBSC) is. What really counts is the damaged condition of the blood's fatty nutrient parcels (LDL lipids). In our research review of metabolic syndromes⁴ (e.g. diabetes, heart disease, obesity, arthritis and dementia) we explained that the major cause of lipid damage was sugar-related.

Sugar Damage (AGEs)

The abbreviation AGE (**A**dvanced **G**lycation **E**nd-product) is used to describe any sugar-damaged protein. As we age, excessive amounts of free sugars in the blood⁵ may eventually cause damage quicker than the body can repair it. The sugars attach by a chemical reaction and the sugar called fructose is known to be 10 times more reactive, and therefore more dangerous than our normal blood sugar (glucose). Since the 1970s we have been using increasing quantities of refined fructose (from high-fructose corn syrup). Its appealing sweetness, and ability to suppress the 'no longer hungry' receptor⁶ (ghrelin receptor) is driving excessive food intake. Its ability to damage our fatty nutrients and lipid circulation is also driving waist-line obesity and its associated health problems^{4,7}.

Checking for Damage in our Lipids

There is a 'simple to administer' commonly available blood test used to check for sugar-damage. It is used to check the proteins in the blood of people who are diabetic or at risk of becoming diabetic. It tests for Glycated Haemoglobin (HbA1c) by counting the proportion of damaged molecules (per 1000) of Haemoglobin protein in the blood (mmol/mol). Researchers looking at ways of testing for damage to lipids, have found that sugar-damaged

blood protein test (HbA1c), presents a very reasonable approximation of the state of sugar-damage in the blood lipids. Until there is a good general test for sugar-damage in blood lipids, this test (HbA1c) could be a sensible surrogate. This is a better way of assessing health than a simple cholesterol test (TBSC).

Improved sugar-damaged blood protein (HbA1c) scores in diabetic patients is accompanied by improvements in their lipid profiles. This could be very useful to anyone wanting to improve health outcomes by managing lifestyle and nutrition.

For the full essay with references read follow this 'bitly link': <http://bit.ly/1fkGYgb>