

Fat – is it good or bad?

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What is fat and why are some good and some bad? This is a question that is frequently asked of me by my patients. We recently did a segment on my radio show on damaged fats and I was not surprised to find many listeners were confused, especially since the science, medical and government communities have changed their stance several times over the last 30 years. So let's look at some of the facts we do know in order to learn the truth about fat. People have been so frightened about cholesterol and fat that they believe they must be avoided at all costs. However, cholesterol and fat are essential to life. They are used by the body as building materials for constant replenishment and should come from dietary sources. Eating cholesterol and fat do not cause heart disease – it is the kind of damaged fats we eat that cause these issues.

Cholesterol is a type of fat that has many functions in the body. Fats and protein make up our cell membranes. These function as the interface between the inside machinery and the outside of the cell. If the membrane is healthy the traffic will flow both ways – nutrients enter the cell and waste by products exit. If the fats or fatty acids in the diet are “good” fats then the membrane will be elastic and retain its permeability allowing traffic to easily flow in and out of the cell. However, if you eat too many “damaged fats” your membranes will stiffen up and the cell has trouble exchanging nutrients for waste and you end up with a traffic jam. When your body is made up of cells that are depleted of cholesterol they are less efficient, which means that your metabolism cannot function as it should. Cholesterol is also important to maintain normal function of various hormones systems and the immune system. Cholesterol is the structural material from which many important hormones are made; such as Vitamin D, DHEA, progesterone, testosterone, estradiol and cortisol (our major stress hormone). Cholesterol is essential for brain function and the stabilization of neurotransmitters such as serotonin and dopamine.

One of the main problems with patients eating fat is they equate dietary fat with body fat. But body fat is only one form of fat, and it is not necessarily derived from the fats that you eat. There are three kinds of fats in the body. *Structural fats* are the class of fats used as building blocks within your body to make cells, hormones, and brain components. *Body fat* is the reservoir of fat found in fat cells created from triglycerides, to be used as insulation and energy. *Dietary fats* come from animal and plant sources. Animal fats are composed of structural and body fat, while plant fats are oils that are made up of fatty acids. Dietary fats do not create fat on your body as fats do not stimulate insulin release and you need insulin to store fat. Fat cannot be stored without the presence of insulin because insulin is necessary to open the doors to store fat in fat cells. Therefore, eating fat with sugar can lead to increase body fat. Some symptoms

resulting from a low fat diet include: brittle nails, carbohydrate craving, constipation, dry limp or thinning hair, infertility, insomnia, fat gain around the middle, scaly itchy skin and mood disorders.

I have many patients that believe limiting dietary fat is the way to stay fit and healthy. How many people do we know that eat a fat free diet and gain weight? A low fat diet works initially because if you reduce fats, the most concentrated energy source, from your diet, your body will use all incoming sugar and fat as energy – which lowers overall blood-sugar and insulin levels. However, when you deprive your body of fat, you also deprive your body of protein; thus decreasing your lean body mass.

What is a good and bad fat? All fatty acids are made from long chains of carbon molecules bound together. A carbon molecule must bind to four other molecules. In these chains, carbon binds to two other carbons, one on either side, leaving two sides unbound. This positioning of the bonds determines the type of fat it is: Saturated fats, monounsaturated fat, or polyunsaturated fat.

Saturated fat is when the two sides are completely filled with hydrogen molecules – hence the term saturated.

Monounsaturated fat is when the whole fatty acid is missing two hydrogen atoms, one carbon will form a double bond with another carbon – hence one bond is not saturated

Polyunsaturated fat is when there is more than one site with the double bond, hence more than one bond is not saturated.

Your body can metabolize natural fats, but it cannot metabolize any type of damaged fat. Fats by nature are good, but what we have done to good natural fats – deep frying and processing them from their natural state into oils – damages human physiology. Damaged fat molecules become cellular debris, clogging cellular compartments and in turn damaging cells.

Damaged fat falls into *three categories*:

Trans-fatty acids

Oxidized fat

Hydrogenated fats

Most people have heard that trans-fatty acids are bad for you, but why? In nature, polyunsaturated fats occur in the “cis” configuration – meaning that the hydrogen atoms around the double bond are on the same side, which is the desirable configuration. However, most polyunsaturated oils are processed out of their natural state by using very high temperatures (for

example corn oil from corn). This process changes the natural “cis” configuration to an unhealthy “trans” configuration. “Trans” means the hydrogen atoms are now on the opposite side of the carbon double bond. These “trans” molecules are damaging to our bodies as we do not have the enzyme necessary to fully metabolize the trans-fat into energy. This is why polyunsaturated oils are easily damaged when placed at higher temperatures.

Oxidized fats are when oils are exposed to air and create free radicals! Oxidation can be seen visually as rancid fats and should never be eaten. Oxidation occurs easier at higher temperatures and thru processing. Oils in their natural state contain antioxidants such as lecithin and vitamin E, which are removed or destroyed during the refining process.

The third damaged fat is hydrogenated fat. These are created when natural polyunsaturated oil has been altered by a chemical process that adds hydrogen molecules to the fat molecule. This process changes naturally occurring oils, which are liquid at room temperature, into solid fats. An example would be margarine from corn oil. The hydrogenation process creates new chemical structures as well as those unwanted trans-fatty acids. Margarine and shortening are two of the most damaging fatty substances you can eat.

Some basic guidelines for avoiding damaged fats are to avoid food cooked at high temperatures such as fried foods and charbroiled. Whenever possible eat your healthy fats such as olive oil and avocado in their uncooked natural state. Slow cook your food at lower temperatures. You need some good fat in your diet for your cells to be healthy.

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