Are We Eating the Wrong Fat?

In February 2012, nine months before the release of Skyfall (the twenty-third James Bond film), actress Judy Dench revealed that she has macular degeneration that prevented her from reading scripts. The 78 year-old actress, who has played the role of M seven times, relies on staff who read scripts to help her memorize her lines.

Macular degeneration is a leading cause of vision loss in Americans over 60 years and recent research indicates there is a connection to hydrogenated fat.

Dr. Paul Beaumont, an ophthalmologist with Australia’s Macular Degeneration Foundation has noticed research that ties macular degeneration to an increase in the consumption of hydrogenated fat. Since 2004, Beaumont has been using the word “epidemic” to describe the rate that macular degeneration multiplied.

As he explains:

Thirty years ago, the major reason for blindness in Australia was diabetes, and it was rare to find macular degeneration. That situation has changed. I’ve seen an exponential rise since the early 1970s.

In 1995, a Food and Drug Administration (FDA) study, found that 90 percent of those polled were either unaware of the dangers of trans fats, or they mistakenly thought that trans fats are beneficial. Even those who knew that trans fats are something to be avoided were confused about how to avoid them.

Eighteen years later, supermarkets still stock margarine and large clear bottles of vegetable oil. These oils are also used in most restaurants due to their low cost. This month, as this article was being assembled, news sources such as ABC, Reuters, and the LA Times were producing stories about an FDA move to ban trans fats. However, a close look at the news stories reveals use of words such as "proposed ban."

What is Macular Degeneration?
Age-Related Macular Degeneration (AMD) results in the deterioration of central vision, and is caused by changes in the cells of the macula where the highest concentration of cones, responsible for central vision, are found. The macula, an area rich in vision receptors, is located in the back of the eye, and is part of the retina.

According to the American Academy of Ophthalmology, more than 2 million Americans age 50 and older have advanced AMD, the stage that can lead to severe vision
impairment.

Besides blurred vision, people with AMD may have a loss of color perception, and may have a dark or empty spot in the center of the field of vision. The photographs that follow illustrate the central vision loss in AMD patients.

Types of Macular Degeneration
There are two types of macular degeneration. Both types are associated with the macula, located in the central portion of the retina, at the back of the eye:

Dry AMD
Dry macular degeneration may be an early form of the disease. It is characterized by a gradual loss of central vision that is caused by a built up of cellular wastes in a part of the retina called the Bruch’s membrane.

Wet AMD
A wet type of macular degeneration occurs when fluid builds up within the layers of the macula. Degeneration is more sudden and often more severe than in dry AMD.

If you have dry macular degeneration, the risk of developing the wet form of AMD will increase 10% per year every year that you have the disease.

Reducing the Risk of Macular Degeneration
To reduce the risk of macular degeneration, you’ll want to:

- Quit smoking
- Eliminate trans fats from your diet
- Increase your intake of healthy fats
- Take zinc and antioxidant supplements
- Control your weight

Other Celebrities With Macular Degeneration
Here is a list of famous people affected by macular degeneration:

- Victor Borge (1909-2000), Danish comedian
- Ernest Borgnine (1917-2012), American actor
- Edgar Degas (1834-1917), French Impressionist
- Dame Judi Dench (b. 1934), British actress (made “Dame Commander of the Order of the British Empire in 1988 which is the female equivalent of a Knight)
- Phyllis Diller (1917-2012), American comedienne
- Bob Hope (1903-2003), American comedian
- Stephen King (b. 1947), American author
- Don Knotts (1924-2006), American actor
- Colleen McCullough (b. 1937), Australian author
- Georgia O’Keefe (1887-1986), American artist
- Sam Snead (1912-2002), American golfer
- Milford Zornes (1908-2008), American watercolor artist

Trans Fats Have Long Shelf Lives
The food industry hydrogenates fat because they are concerned about shelf life. Unlike saturated fat, fat that is unsaturated contains an unstable amount of hydrogen atoms making the oil a candidate for attack from oxygen which would turn the oil rancid. Rancid oils often smell bad and can form free radicals that damage cells of the body.

When food companies hydrogenate, they bubble hydrogen gas through tanks of unsaturated fat to artificially create a saturated fat called a trans fat. The food companies produce a new, inexpensive, plant-based oil that has an extended shelf life. And, since the public will most likely never understand hydrogenation, the arterial plaque that is formed by the new trans fat can be blamed on animal fat.

The truth is, saturated fats are the most chemically stable of all the fats. They have the longest shelf life, they can withstand high cooking temperatures and are solid at room temperature. This type of fat is found in tropical oils and animal fats.
Supermarket Oils
The following supermarket oils sold in clear plastic bottles contain trans fats. They are polyunsaturated oils that are linked to cancer, heart disease, type 2 diabetes and macular degeneration:

- Soybean
- Corn
- Sunflower
- Safflower
- Cottonseed

According to the United States Department of Agriculture, soybean oil represents approximately 65 percent of all edible oil consumed in the United States, down from about 79 percent in 2000 due to controversy over trans-fat.

Vegetable Oil Behemoth
According to a market research company called MarketsandMarkets (M&M), the global vegetable oil market is expected to be worth $91.4 Billion by 2017 (up from an estimated $81.0 billion in 2012). The vegetable oil market is divided into three segments:

- Food (80%)
- Non-food (industrial, 10%)
- Biodiesel feed (10%)

Milk and Eggs Are Excellent Sources of Fat and Protein
Research on fats reveals that phospholipids, a form of fat, are critical to cell health. Milk and egg yolks are excellent sources of phospholipids.

Milk and eggs are also excellent sources of usable protein. Cyclists, body builders and poultry farmers seem to be the first to understand the concept of usable protein:

<table>
<thead>
<tr>
<th>Food</th>
<th>Percent Usable Protein</th>
</tr>
</thead>
<tbody>
<tr>
<td>Egg</td>
<td>90%</td>
</tr>
<tr>
<td>Milk Products</td>
<td>76%</td>
</tr>
<tr>
<td>Meat, Poultry and Fish</td>
<td>15-20%</td>
</tr>
</tbody>
</table>

You would need to consume larger quantities of meat, poultry and fish to obtain the same amount of usable protein that is in an egg or dairy product.

Nature’s Best Oils
A healthy diet should consist of fats from all the fat categories (except trans fats). Here’s a list of fats classified according to degree of saturation (For details on saturation, see: Extras for Experts):

<table>
<thead>
<tr>
<th>Fat Category</th>
<th>Notes</th>
</tr>
</thead>
<tbody>
<tr>
<td>Saturated Fat</td>
<td>This important group of fats gives cell membranes necessary rigidity. Fifty percent of a cell membrane saturated fat.</td>
</tr>
<tr>
<td>Sources: Butter, cream coconut, palm cocoa butter, beef tallow</td>
<td></td>
</tr>
<tr>
<td>Monounsaturated Fat</td>
<td>This important group of fats can be converted to saturated fats and back as needed. Monounsaturated fats are known to provide an efficient source of energy.</td>
</tr>
<tr>
<td>Sources: Chicken, turkey, goose and duck fat, olives, avocado and nuts</td>
<td></td>
</tr>
<tr>
<td>Polyunsaturated, Omega 3 Fat</td>
<td>This important group of fatty acids (Omega-3 and Omega-6) react with enzymes to form important derivatives that are critical for our metabolism.</td>
</tr>
<tr>
<td>Sources: Fish oil, cold water fish, grassfed beef, bison, organ meats, and eggs from pastured hens. Flax, hemp and perilla</td>
<td></td>
</tr>
<tr>
<td>Polyunsaturated, Omega 6 Fat</td>
<td>This important group of fatty acids (Omega-3 and Omega-6) react with enzymes to form important derivatives that are critical for our metabolism.</td>
</tr>
<tr>
<td>Sources: Borage, primrose and black currant Grassfed beef and bison,</td>
<td></td>
</tr>
</tbody>
</table>
organ meats and eggs from pastured hens.

Coconut Oil
Alternative medical doctors have started to recognize the health benefits of virgin coconut oil (VCO) that has become increasingly popular in health and natural food circles.

As long as you avoid the hydrogenated version, the raw, or virgin form is known for medium-chain fatty acids that do not need to be digested with bile salts in the liver. Coconut oil contains lauric acid that has antimicrobial properties and it lowers cholesterol by converting it to pregnenolone, a molecule that is a precursor to many of the hormones our bodies need.

Medical research pioneers have discovered an unusual benefit from coconut oil that has not been accepted by the medical establishment. The rapid-absorption property in coconut oil that offers a source of energy, also offers an indirect advantage for patients with cancer, epilepsy and Alzheimer’s. The impaired cells in these conditions have a metabolism that is different than the normal cells. Ordinary cells are versatile enough to obtain fuel from several sources including glucose, glutamine, ketones and fat, but mutated cells need to rely on glucose and glutamine. A low-carbohydrate and high fat diet (called a ketogenic diet) provides fuel that normal cells need, but starves diseased cells.

Extras For Experts
Two different systems exist to classify fatty acids:

**Degree of Saturation** - Saturation refers to the presence or absence of double bonds:
- Saturated
- Unsaturated

**Chain Length** - The number of carbon atoms forming a chain:

<table>
<thead>
<tr>
<th>Length</th>
<th>Number of Carbon Atoms</th>
</tr>
</thead>
<tbody>
<tr>
<td>Short-chain fatty acid (SCFA)</td>
<td>&lt; 6 carbon atoms</td>
</tr>
<tr>
<td>Medium-chain fatty acid (MCFA)</td>
<td>6-12 carbon atoms</td>
</tr>
<tr>
<td>Long-chain fatty acid (LCFA)</td>
<td>14-20 carbon atoms</td>
</tr>
<tr>
<td>Very-long chain fatty acid (VLCFA)</td>
<td>&gt; 20 carbon atoms</td>
</tr>
</tbody>
</table>

References