
Exercise for the Mind

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Transmuting Cholesterol into Gold

by *Stanford Field*

THE GREAT EPIDEMIC OF PRESCRIPTION DRUG USE

Over the last 50 years, the pharmaceutical industry has built an empire that has diffused through all aspects of medical treatment in America. Americans are the most drug-addicted people in the world.

At the root of this scourge is the quest for ever-higher profits that are driven by the American economic system. Furthermore, deception-for-profit is a common practice that degrades societal morals and disregards the health and welfare of people.

The U.S. Food and Drug Administration (FDA) is presumed by most people to be the government agency whose primary function is to protect the population from substances that are injurious to health. **However, the FDA watchdog has been rendered impotent by being addictively drugged to insensitivity with money and promises of employment from the pharmaceutical industry.** This leaves the general population dependent on their doctors whose professionalism and knowledge has been eroded by the same pharmaceutical industry. The main therapies offered by modern medicine are drugs and surgery. The use of television commercials to promote drug use for almost any type of discomfort, has added fuel to the fire.

Currently, about three billion prescriptions are written per year in the U.S. which make this about a \$300 billion per year business. The drug profits are so huge that the pharmacy department of most "drug stores" accounts for nearly all of the profit of the store. Again, it's all about money. Over 100,000 people die annually from unintended complications

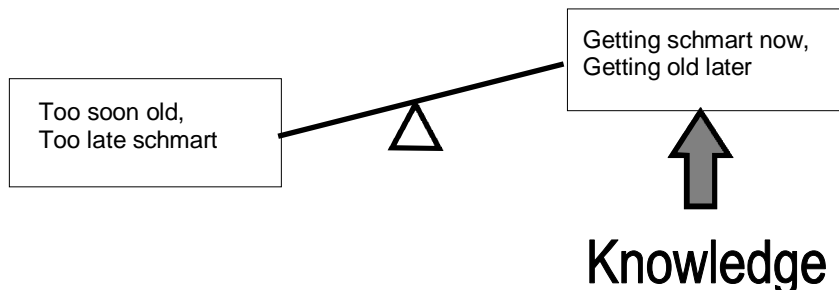
of drug medication. This rate of death (300 people/day) is equivalent to one commercial airplane crash per day, and yet, the public does not protest because blame is difficult to assess. **However, we do know that drugs disrupt physiological systems that are vital to health, and therefore, there is no such thing as a safe drug.**

In 2003 in the U.S., the blood test and BMI limits (that doctors use to determine drug use) were lowered to create 86 million new American drug applications, as shown in the following table:

Indicator	Disease	Old Limit	New Limit	Millions of New Cases
Serum Glucose	Diabetes	140 mg/dl	126 mg/dl	2
Blood Pressure	Hypertension	160/100 mm Hg	140/90 mm Hg	13
Serum Cholesterol	High Cholesterol	240 mg/dl	200 mg/dl	42
Body Mass Index	Obesity	27	25	29

We will now turn to the importance of biochemicals in the various pathways to cholesterol to provide an understanding of the pervasive damage of cholesterol inhibition by statin drugs.

Exercise for the Mind is written by Stanford Field (BS chemical engineering [Penn State], 1951; MS meteorology [US Naval Postgraduate School], 1955). His chemical engineering career was in the oil and petrochemical industries. In 1993, he retired from Stanford Research Institute where he had been Director of Energy Programs. Since that time, he has been avidly studying biochemistry and physiology with the aim of staying healthy. This document is written to add to the general knowledge of interested readers. The publication has neither profit nor political motives.



THE BRIEF BIOCHEMISTRY AND PHYSIOLOGY OF CHOLESTEROL AND ITS ANTECEDENTS

Food supplies the chemicals for building the body (proteins) and for generating energy (carbohydrates and fats). In extremis, proteins can be used to generate energy.

Under normal conditions, the carbohydrates and fats are metabolized to **acetyl coenzyme A** (C2) from which energy is generated in the mitochondria of the cell. There are a few thousand mitochondria in the cytosol of each of the 60-100 trillion cells of the body.

The **C2 fragment is also used to construct cholesterol (a C27) molecule** that is vital for life. That operation occurs in the cytosol of the cell. The cytosol is that portion of the cell in which the nucleus is imbedded. The nucleus contains the DNA.

During the construction of cholesterol, C2 is converted to a C6 (3-hydroxy-methylglutaryl-CoA or HMG-CoA) which is subsequently hydrogenated to a saturated C6 (mevalonate). **That hydrogenation is catalyzed by an enzyme (HMG-CoA reductase) which is inhibited by statin drugs to reduce the formation of mevalonate and all of its downstream derivatives that include the following:**

- **CoQ10** (It is an isoprenoid; it is an electron carrier for the production of energy (ATP) in the mitochondria of all cells)
- **Carotenoids** (They are isoprenoids; essential for vision)
- **Vitamin A** (Trans-retinol: synthesized from beta-carotene which is an isoprenoid)
- **Vitamin E** (An isoprenoid and essential fat-soluble antioxidant)
- **Vitamin K** (An isoprenoid necessary for blood clotting)
- **Dolichols** (Isoprenoids that control the formation of glycoproteins used for cellular communications)
- **Squalene** (A C30 containing six isoprene [C5] units that is cyclized to cholesterol. Squalene is a powerful antioxidant that prevents oxidative damage from UV light, prevents lipid peroxidation and prevents cancer)
- **7-Dehydrocholesterol** In the skin it reacts with ultraviolet light to form Vitamin D3 [cholecalciferol] which is a prohormone. The prohormone D3 is converted to 25-hydroxyvitamin D3 [caldiol] in the liver. This is the primary storage form of the vitamin that is carried by vitamin D-binding protein in the bloodstream. This is the one that is usually measured by a blood test. As needed, caldiol is fully activated to 1,25 dihydroxyvitamin D (calcitriol) in the kidney primarily in response to low calcium levels being analyzed by the kidney. Statins drastically reduce the conversion of 7-dehydrocholesterol to vitamin D3. **Current recommendations to use sunscreens (carcinogenic) and stay out of the sun presume that skin cancer is caused by the sun. It is more likely that skin cancer is related to the carcinogens in sunscreens that are activated by UV**

light, combined with lack of vitamin D. Other important research shows that vitamin D deficiency leads to skin cancer. My preference is to get plenty of sun using olive oil to provide antioxidants and to keep the skin moist. In addition, I take plenty of cod liver oil. Do not use fish oil (bodies) because they have no vitamin D.

- **Steroid Hormones** that include pregnenolone, testosterone, estradiol, progesterone, DHEA, cortisol, aldosterone [regulates mineral content of body] and a multitude of others. These hormones control so many aspects of life that they cannot be discussed in this short article.
- **Bile Acids** [needed for fat digestion and liver detoxication].

CONCLUSION ABOUT STATIN USE

Statin use slowly debilitates almost all important aspects of human physiology. The dose is apparently adjusted to lower cholesterol while body functions slowly deteriorate. That way the user thinks that it is great that cholesterol is going down, and deteriorating health would have happened anyway as he or she slowly sinks into the sunset. In that regard, a relatively unrecognized effect of statins is that they cause memory loss that mimics early Alzheimer's disease.

THE CAUSE OF ELEVATED CHOLESTEROL IN HEART DISEASE IS INFLAMMATION AND INSUFFICIENT REPAIR NUTRIENTS

Oxidative stress causes inflammation. Common sources of inflammation include: physical trauma, infection, lack of sleep, severe emotional distress (depression, hostility, anxiety, feelings of inferiority, envy) and chemical toxicity (pesticides, food additives, monosodium glutamate, aspartame, modern medicines, mercury amalgams, smoking, excitotoxins, estrogen mimics, oxidized cholesterol).

After oxidation has overwhelmed the antioxidant defense system and has damaged arteries, emergency repairs appear in the form of an aggregate of platelets and a mesh of fibrin to form an immediate plug to stop bleeding.

When there is a chronic deficiency of collagen-forming nutrients that are preferred to repair and strengthen arteries, the body uses a second line of defense by bringing Lp(a) consisting of apoprotein (a) attached to the outside of low density lipoprotein to act as "bioadhesive tape." The subsequent action of cholesterol and calcium in addition to the platelet/fibrin mesh/Lp(a) aggregate, forms a brittle, tough, inflexible and hardened patch which strengthens arteries, but also blocks them. The way out of this mess: **Prevent oxidative stress and use antioxidants!**

Best Wishes for a Healthy Life, *Stan Field*