The Wholesomeness of Grains

Grain and Legume Extracts

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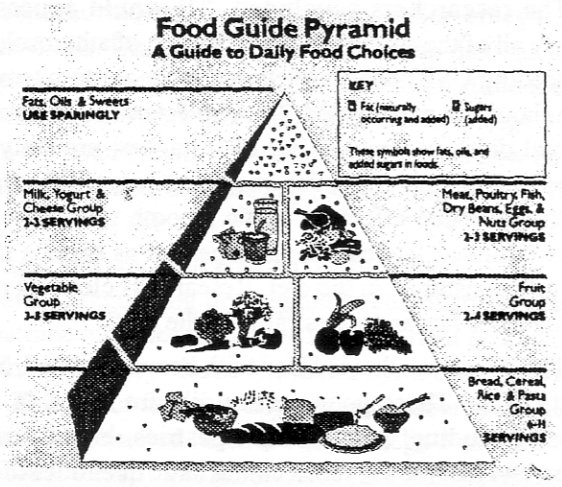


Background

In the 1880's the steel roller mill was developed in Hungary. For the first time it became feasible and economical to process large quantities of grain and remove virtually all the nutrients except for the starch. This dietary change unleashed a rapid deterioration in the health of large numbers of people in the west. A similar change took place in Asia with the introduction of polished rice. Chronic diseases became commonplace and even expected. Strong and economically powerful food processing, pharmaceutical and medical industries arose to take advantage of the opportunities presented by the deteriorating health in the modern world. This decline in health was well documented by Dr. Westin A. Price in his book, *Nutrition and Physical Degeneration.*

Dawning Awareness of the Problem

The United States Department of Agriculture has chosen to place grains at the base of the food pyramid. They suggest consumption of 6-11 servings of these foods a day. Ideally, these servings should be from *whole* grains with fiber and oils intact. This paper is designed to share some of the remarkable discoveries made regarding grain oils in the last half century.

It should be pointed out that most Americans do not have an activity level to be capable of consuming the recommended quantity of grain without weight gain. Our lives are simply too sedentary to consume the quantities of foods typical of our ancestors. When the Food Guide Pyramid was introduced in the Sacramento Bee (June 3, 1992) the difficulty of eating all the food recommended was recognized,

"Though it's been about six weeks since the chart debuted, most people still don't have a clue about how to incorporate it into their daily lives. To consume all the food the guide recommends, one can imagine munching non-stop from dawn till dusk. We're advised, for instance, to eat a daunting 6-11 servings of grain foods — bread, cereal, rice, pasta, barley, etc. — every day."

The nutrients provided by grains are very complete because each seed or grain is a complete living organism. Packaged within that organism is just about everything necessary for life including vitamins and minerals, a complex carbohydrate energy source, protein and high quality oils with anti-oxidants to protect them.

Grain Oil Research

Professor Jaroslav Heyrovsky, inventor of the polarograph.

Modern milling of grain began in Hungary. Elucidation of the nutritional properties of grain oils began in nearby Czhechoslovakia. In 1959 Professor Jaroslav Heyrovsky of Charles University, Prague, won a Nobel prize in Chemistry. The prize was for his development of an instrument known as the polarograph a quarter century earlier. The polarograph made it possible to measure extremely small quantities of substances for the first time in history.

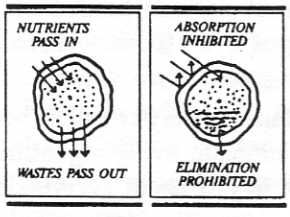
In 1946 a research team in a large Southern California hospital obtained one of these machines and commenced work to determine the relationship between nutrition, glandular output, and chronic fatigue.

The research team, headed by Dr. J. A. Restifo, Ph.D., came to the conclusion that the modern refined diet predisposes modern man to glandular failure and consequent chronic fatigue. The removal of the quality oils from grains has wide ranging effects on overall health. Much of the material which follows was ascertained by Dr. Restifo and his research team as early as 1958.

The Oils in Grains

The oils in grains are really quite complex. They consist of both omega-3 and omega-6 types of fats. Grains also contain a number of unique fatty compounds including octacosanol, beta-sitosterol, gamma oryzanol, tocotrienols and the tocopherols. These different factors can contribute to health betterment in many ways. The three major contributions of grain oils are to the health of the cell membrane, balanced prostaglandin or tissue hormone synthesis, and endocrine enhancement.

Cell Membranes



Each cell is bounded by a membrane. The internal components of the cell like the energy producing apparatus (mitochondria) and nucleus also have membranes. These membranes are constructed out of a double layer of lipids or quality oils.

The fatty brick which makes up the cell wall is called a *phosphatide*. This is a stucture consisting of three fatty molecules connected together by a molecule of glycerine. The type of fat incorporated into the phosphatide is dependent upon the diet the person has been consuming. Good or bad fats can be incorporated into the cell wall.

Membranes of cells are between 20% and 80% phosphatides. Forty-five percent of the membrane of a red blood cell is made of phosphatides, the rest being protein. By contrast, nerve cells are 80% phosphatides. One can easily see how tissues composed largely of fat, such as brain and nerve cells, can be detrimentally influenced by consuming diets high in poor quality fats. A key facet of dealing with neuroses and psychoses in the future may well prove to be careful consideration of the quality of the fats and oils in the diet.

Quality nonrancid oils are essential to build a healthy cell membrane. These are often difficult to find in the diet of modern man. There are only two ways to obtain quality oils in the diet. The first is in seeds, grains and nuts which are fresh and whole. The second way to obtain quality oils is through supplements which have been gelatin encapsulated and protected from exposure to light and oxygen in processing.

When grains are milled or nuts are cracked the oils often oxidize and are no longer useful building materials. Rancid fats can be very damaging to health. In one study of rabbits, researchers concluded "oxidized cholesterol is 500 times more damaging than pure cholesterol."

The researchers concluded, "It would appear that nearly all of the studies on the induction of atherosclerosis by feeding USP cholesterol stored in air at room temperature should be reevaluated. The cholesterol used in experimental diets, in the majority of instances, probably contained significant quantities of oxidized sterols that have a strikingly lethal effect on aortic smooth muscle cells."[1] Less saturated fats can do damage just as serious if they are overconsumed in the diet. Research is clear, all rancid or oxidized fats are undesirable in the diet.

The American diet is filled with heavily refined, highly heated fats. These poor quality oils are found in many foods including: potato chips, pastries, breads, margarines, and fast foods. When eating large quantities of these foods, remember that this is the raw material with which you are supplying the body to build an immune system, hormones to govern body chemistry, brain and nerve cells.

A healthy cell membrane must perform a number of functions. It must permit entry of needed nutrients, while keeping out substances in the blood not needed by that cell. It must also permit elimination of wastes by the cell. These functions break down when quality oils are missing from the diet.

Fortunately, grains are rich in lipids bonded with phosphorus and nitrogen, the very best raw materials for construction of cell membranes. When consumed as either whole grains, or as grain oil extracts, these substances become rapidly incorporated into the membranes of the cells. This enables the cell walls to properly perform their guardian role at the gateway of entry to the cell. Toxins can be eliminated and essential nutrients assimilated.

Prostaglandins

Prostaglandins are tissue hormones. They make their appearance when an enzyme splits away the fat from a cell wall. The fat is then manipulated by various enzymes until the end product is formed. The fatty composition of the membrane of the cell is crucial in determining the type of prostaglandin or tissue hormone which will be produced.

Sources of Omega-3 Oils	
Mackeral	Sardine
Salmon	Walnut
Flax Seed	Wheat
Purslane	Note: The highest quality omega--3 oils are the fish sources. These contain EPA, the root raw material from which many anti-inflammatory hormones are produced.
Leafy Greens	
Pumpkin Seed	
Soy	

Tissue hormones are built from either omega-3 or omega-6 oils. Unfortunately, the American diet has large quantities of omega-6 oils which tend to promote the inflammatory response. The diet is very low in omega-3 oils which are notably anti-inflammatory. This is a new development. One hundred years ago the diet consisted of a balanced intake of these two oils.

Wheat and soy both contain quality omega-3 oils. The best oil for regulating prostaglandin chemistry is salmon and sardine oil. These oils have the important precursor to anti-inflammatory tissue hormone synthesis known as EPA. This is not found in *any* vegetable source including the widely promoted flax seed oil. Omega-3 oils are very unstable and easily oxidized. Great care must be taken that these substances do not turn rancid. A rancid omega-3 oil is worse than none at all. The best way to protect these oils from rancidity is to leave them in the grain until consumed or to gelatin encapsulate them.

(When using fish oil capsules, it it important to assess the quality of the manufacturing process. One study by Tufts University found the average amount of EPA in 10 major fish oil products was only 38% of what was listed on the label.[2] Studies have also shown a problem of contamination of fish with pollutants like PCB and mercury. Fish oil supplements should be tested for toxic residues.[3])

Hormone Synthesis

The oils in grains have been shown to be particularly valuable in promoting normal hormone synthesis. The nutrition rations put together for animals are usually designed by nutritionists to assure healthy reproduction from one generation to another as well as a minimal number of health problems in experimental animals.

In such circumstances, it is unusual to supplement and see dramatic changes take place. Nevertheless, when laboratory rats were given grain concentrates a dramatic and observable improvement in health took place. Animals given the grain oil extracts had adrenal glands which functioned with greater effectiveness as measured by an increase of 175% in liver glycogen, the body's reserve fuel. Estrogenic activity in female animals as measured by uterus weight was up 234%, while androgenic activity in males as measured by prostate weight was up 155%.

Type of Test	Parameters Measured	Test Material	Findings
Adrenal Activity	Liver Glycogen	Control Tre-en-en®	100% 175%
Estrogenic Activity	Uterus Weight	Control Tre-en-en®	100% 234%
Androgenic Activity	Prostate Weight	Control Tre-en-en®	100% 155%

A separate study showed that animals supplemented with grain oil extracts showed a greater level of overall growth and development than controls. The animals also showed greater cardiovascular development and superior nutrient utilization. Lack of optimal growth rate is a characteristic of lack of sufficient quality oils in the diet.[4]

There are many implications of these experiments and of the loss from the diet of the quality oils from grains. Vitamins and minerals alone do not provide complete nutrition. One observer writes, "I don't believe vitamins and minerals even keep us alive much longer. They just tend

Animals given grain oil concentrates showed superior development and better overall health than animals given normal vitamin and mineral fortified laboratory chow. The upper animal received a quality grain oil concentrate in addition to the nutritionally fortified laboratory chow.

to overpep us—we are restlessly active rather than actually strong and well. Without the essential lipids along with them, these popular supplements actually may over—stimulate us—and kill us sooner."[5]

One of the major problems which develops when quality oils are missing from the diet is the construction of tissues from inferior materials. Meynell writes, "When these essential fatty acids are not present in sufficient quantity, many vital substances and tissues—such as cholesterol and lecithin, connective tissue and nerve sheaths—are believed to be synthesized from hard fat. They are 'ersatz' (artificial) and lack full biological availability."[6]

The essential oils sit at the gate of the life of the cell. They both control cell metabolism and also determine the efficiency of the gonadal and adrenal hormones. Lipids from cereal grains contain the necessary materials for these functions. Other sources, such as alfalfa have been shown to be incomplete.[7]

Grain Oil Conentrates and Athletes

Athletes have also been shown to benefit from cereal concentrates. Steroid output has been found to improve after approximately ten weeks of supplementation. Vitamins, minerals, and protein alone were insufficient to produce these benefits. This was in spite of the fact that athletes receiving these supplements felt a lot more energetic and many were "raring to go." A feeling of energy is not always an indication that fundamental nutrition is taking place. Caffeine, guarana and ephedra and apparently synthetic vitamins can create a feeling of energy without supplying basic nutrition.

Athletes receiving grain oil extracts with other nutrients demonstrated an endurance factor missing in other athletes. "They not only felt more vigorous and eager to go, they could go...and keep it up." In the words of one of the researchers, "Athletes who did not receive the lipid fraction made no physiological improvement, although they experienced a feeling of well-being to begin with. It is possible that some supplements stimulate rather than support vigor. The lipid fraction used was obtained from germ oils. It was so prepared as to furnish the sterols often lacking in lipid preparations."[8]

Those Exotic Grains

The research which has been discussed took place in the 1950's. More recent work only further substantiates the value of the grains. Not only are the lipids and sterols from grains important, but recently a whole new world of substances have been isolated from grains and studied.

Rice bran oil has yielded a substance called gamma oryzanol. (Gamma means third, oryza is a word meaning rice, and -ol refers to an alcohol group in the compound.) This substance has been tossed out of the diet since the advent of white polished rice.

This substance has antioxidant properties. It also inhibits cancer formation. It helps the body handle fats better by inhibiting cholesterol absorption. This is a characteristic of many plant sterols, especially soy oils. Gamma oryzanol also inhibits ulcer formation by apparently improving nerve function and helping animals better cope with stress. This substance also has a beneficial effect upon hormone levels.[9]

Wheat germ oil contains several complex fats: octacosanol, triacontanol, tetracosanol, and hexacosanol. These promote stamina in athletes. When wheat germ oil is separated from vitamin E, the remaining factors improve endurance more than does the vitamin E.[10]

Wheat germ is, of course, the best natural source of vitamin E. Today researchers are studying compounds called tocotrienols, found in wheat germ oil. These are closely related to vitamin E, but appear to have even greater antioxidant activity. Dr. Lester Packer, the world's foremost authority on vitamin E wrote, "Work in our laboratory with in vitro membrane systems has shown that the most common of the tocotrienols, D-a-tocotrienol, has forty to 60 times the antioxidant potency of D-a-tocopherol." The presence in foods and natural food concentrates of substances like this indicates that those who rely on synthetic vitamins for all their nutritional needs may really be missing out on significant protection they could have. Mother nature is very complex and very thorough in her nutritional provision.[11]

[Further information on grain and legume oil extracts is available by obtaining a copy of the Career Manual of the Neo-Life Company of America. The company has been marketing a grain and legume extract for well over a quarter century.]

References:

1. Taylor, C. et al. "Spontaneously occuring angiotoxic derivatives of cholesterol." *Am J Clin Nutr* 32:40-57, 1979.

2. Tufts University *Diet and Nutrition Letter*, Volume 5, Number 11, January 1988.

3. "Fish on Ice," *U.S. News and World Report*, January 27, 1992, p. 14.

4. Career Manual, Neo-Life Company, p. S-5to S-8.

5. Meynell, Paul, "Role of Lipids," *Herald of Health*, Career Manual, Neo-Life Company, p. S-142.

6. Meynell, p. S-142.

7. Meynell, Paul, "For Complete Metabolism," *Herald of Health*, Neo-Life Career Manual, p. S-144.

8. Meynell, Paul, "For Improved Metabolism," *Herald of Health*, Neo-Life Career Manual, p. S-146.

9. Bruni, Joseph, *Gamma Oryzanol*, Houston: Claudel Publishing, 1988.

10. Bland, Jeffrey, *Octacosanol, Carnitine and Other "Accessory" Nutrients*. New Canaan, Con.: Keats Publishing, 1982, pp. 2-3.

11.(Packer, Lester, "Vitamin E is Nature's Master Antioxidant," *Scientific American Science & Medicine*, March/April 1994, p. 56.