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Blood Types and Fat Absorption

When it comes to fats, one man's food may well be another man's poison.

by Peter D'Adamo, ND, MIFHI

No single diet theory can address all aspects of our individuality, and only a fool would claim that soy, red meat, grains, coconut oil or anything else is universally good or universally bad for everyone.

For example, people who are blood group O appear to derive significant benefit from a diet including lean animal proteins, hormone and antibiotic-free meats and poultry. There is a very basic physiologic reason for this: those with type O blood have almost three times the levels of an enzyme in their intestines known as intestinal alkaline phosphatase (IAP). [1] This enzyme performs two very important functions in the body. First, IAP splits dietary cholesterol into smaller fragments, allowing for their proper breakdown. Second, IAP enhances the absorption of calcium from the diet.

The researchers looked at IAP and a second factor: apolipoprotein B-48 (apoB-48). Apolipoprotein B (APOB) is the primary apolipoprotein of low-density lipoproteins (LDL or "bad cholesterol"), which is responsible for carrying cholesterol to tissues. Both IAP and APOB-48 are exclusive to the intestine, although only APOB-48 is found in chylomicrons, large lipoprotein particles that consist of triglycerides (85-92%), phospholipids (6-12%) and small amounts of cholesterol and proteins that transport dietary lipids from the intestines to other locations in the body. After most of the lipids in the chylomicron have been digested, APOB-48 returns to the liver as part of the chylomicron remnant, where it is absorbed and degraded.

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Do You Need to Buy Organic?

Some conventionally grown foods are treated with more pesticides than others. Some retain more of the pesticides. Here is a list of the top 10 foods containing the most pesticides, according to the Environmental Working Group, a non-profit research group. You may want to purchase these from organic sources:

- Nectarines - 97.3% of nectarines sampled were found to contain pesticides.
- Celery - 94.5% of celery sampled were found to contain pesticides.
- Pears - 94.4% of pears sampled were found to contain pesticides.
- Peaches - 93.7% of peaches sampled were found to contain pesticides.
- Apples - 91% of apples sampled were found to contain pesticides.
- Cherries - 91% of cherries sampled were found to contain pesticides.
- Strawberries - 90% of strawberries sampled were found to contain pesticides.
- Imported Grapes - 86% of imported grapes (i.e. Chile) sampled were found to contain pesticides.
- Spinach - 83.4% of spinach sampled were found to contain pesticides.
- Potatoes - 79.3% of potatoes sampled were found to contain pesticides.
- Bell Peppers - 68% of bell peppers sampled were found to contain pesticides.
- Red Raspberries - 59% of red raspberries sampled were found to contain pesticides.

Fruits and vegetables typically low in pesticides include: asparagus, avocados, bananas, broccoli, cauliflower, kiwis, mangoes, papayas, pineapples and onions. These can be purchased from non-organic sources.

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Blood Types and Fats (continued from page 1)

In the study, levels of these enzymes in serum samples were obtained from 40 healthy subjects after an overnight fast and 3 hours after a high-fat meal. Both apoB-48 and IAP were greater in subjects without blood antigen A (blood groups B and O) than in those with this antigen (blood groups A and AB). The non-blood type A group had 2.4 greater levels of IAP before the meal and a 4.7-fold greater level of for IAP after the meal. The non-blood type A group had 1.5- and 2.0-fold greater levels of apoB-48 over the blood type A group before and after the meal, respectively.

Moreover, IAP and apoB-48 levels were strongly correlated in the subjects who were 'secretors'. These results indicate that IAP is strongly involved in chylomicron formation and fatty acid metabolism might change among ABO blood type.

ABO blood type classification in apoB-48 measurement would improve the diagnostic value in the evaluation of metabolic syndrome.

Now you'd think this was cutting-edge, late-breaking news since it is obviously of tremendous interest in these nutrigenomic times. However, the first observations were made over four decades ago.[2]

In addition to these two critical functions, IAP has an important influence on the ability of the digestive tract to heal. Thus, in most of our type O patients (44% of the population), we see a marked improvement in their IBS, colitis and Crohn's disease when they increase their protein and cut back on their carbohydrates. [3]

Blood group B makes considerable amounts of IAP as well, but blood group A and AB make very little. This probably explains why most studies that have looked at heart disease and blood type show a significantly higher rate of problems with blood group A individuals. These folks really should follow a Mediterranean-type diet.

Later studies showed that blood group A not only secreted almost no alkaline phosphatase in their intestines, but whatever little they did secrete was in and of itself inactivated by the presence of their own blood group A antigen. [4]

The significant variations in apoB-48 and IAP as seen between the ABO blood groups are some of the strongest indications for the long term benefit of a low-fat diet in blood group A, both with regard to their susceptibility to cardiovascular disease, and (although not mentioned here) their additional susceptibility to cancer. An emphasis on a healthy fats, low animal protein and the avoidance of foods high in phenylalanine, are the best methods, for individuals who are blood type A, to help maximize digestive efficiency, lower their level of intestinal dysfunction, and to influence their susceptibility to cardiovascular disease.

1. Nakano T, Shimanuki T, Matsushita M, Koyama I, Inoue I, Katayama S, Alpers DH, Komoda T. Involvement of intestinal alkaline phosphatase in serum apolipoprotein B-48 level and its association with ABO and secretor blood group types. *Biochem Biophys Res Commun.* 2006 Mar 3;341(1):33-8.
2. Blood groups and The Intestine. Editorial, *Lancet* (Dec.3, 1966).
3. Bol-Schoenmakers M, et al .Intestinal alkaline phosphatase contributes to the reduction of severe intestinal epithelial damage. *Eur J Pharmacol.* 2010 May 10;633(1-3):71-7.
4. Bayer PM, Hotschek H, Knoth E. Intestinal alkaline phosphatase and the ABO blood group system—a new aspect. *Clin Chim Acta.* 1980 Nov . 20;108(1):81-7.

Buying Organic (continued from page 1)

Exercising simple choices based on the best evidence can help limit your exposure to hormones and environmental poisons:

- Meats - try to find and use 'grass-fed' red meats. These have the highest concentration of healthful fatty acids.
- Milk - (rBGH) used in conventional milk production have suggested links to early puberty and other hormonal abnormalities.
- Eggs - most eggs are produced using a range of antibiotics and hormones on the chickens that bear them.

The use of these fish and seafood should be minimized or avoided altogether:

- Blue mussel
- Bluefish
- Gulf Coast blue crab
- Cod (except Atlantic)
- Catfish (farmed)
- Eastern oyster
- Halibut (Atlantic)
- King mackerel
- Largemouth bass
- Lake Trout
- Lake white fish
- Mahi-mahi
- Marlin
- Oysters
- Pike
- Pollock
- Porgy
- Rockfish
- Salmon (Great Lakes)
- Salmon (most farmed)
- Sea bass
- Shark
- Swordfish
- Tilefish
- Tuna (canned)
- Tuna steaks
- Walleye
- White Croaker

Fingerprint White Lines and Gluten

Changes to the appearance of your fingerprints may help identify whether you are gluten sensitive.

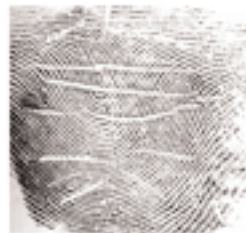
by Peter D'Adamo, ND, MIFHI

Although almost everyone knows that fingerprint ridge patterns remain constant and unchanging throughout life (which is why they are so useful to law enforcement) even professionals involved in dermatoglyphics research are often unaware of the changeable nature of the actual height of the ridges themselves. There are a series of surprising correlations between changes to the height of the ridge pattern and links to gluten intolerance found in diseases such as celiac and to certain sensitivities to proteins in the diet called lectins.

Ridge height appears to be linked to many of the same cell processes that control glycosylation in the gut. Proper ridge height equates with an intact, healthy digestive track, while a worn appearance may signal digestive problems. Known as ridge hypoplasia, this is a situation in which the fingerprint ridges are reduced in height, giving them a "worn-off" appearance. These areas of worn off ridges are also covered with an unusual number of fine secondary creases that become visible, producing what are called "white lines." [1]



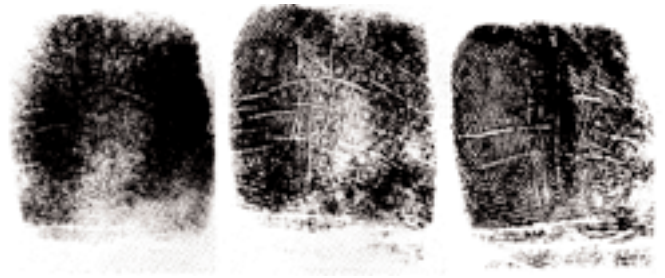
Normal ridge height



Low ridge height
(white lines)

Normal (l) and low ridge height (r)

Typically, the number of white lines increases with age and with subsequent deterioration of gut integrity. Research dating back to the early 1970's has linked the appearance of white lines to adults who suffer with celiac disease. [2-6] Ridge height is the only aspect of fingerprints that can actually change with health status. Most interestingly, these white lines often improve with the maintenance of a gluten free diet, and researchers suggest that improvements to ridge height and disappearance of white lines could be used as an indicator of the patient's response to diet therapy, although complete improvement of the fingerprints could often take as long as two years.



Ridge height of a 54-year-old man with celiac disease

At the left is a series of fingerprints from the right little finger of a 54-year-old man with celiac disease. Left to right: a newly-diagnosed case showing almost complete ridge atrophy. Middle: After one-month of treatment with gluten-free diet the fingerprint shows partial ridge atrophy with appearance of white lines. Right: After 11 months on a gluten-free diet the fingerprint prints shows an almost complete regeneration of the dermal ridges, with disappearance of most white lines. [2]

There is no widespread agreement about the frequency of white lines in the general population. The most extensive study indicated that they are found in the fingerprints of 11-13% of the population, although the study used police records and so would have been made up predominantly of males. [6] Other figures, with broader subject bases, seem to indicate that they can be seen in about 22-30% of all northern Europeans. White lines appear to be more common on the left hand and more commonly on the third and fourth digits. [7-8]

In our clinic we find that white lines show up on about 40% of the fingerprints we take. However in many of these patients the gluten intolerance is not genetic and can be reversed by personalized diet therapy according to blood type and genotype.

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3. Mylotte, M et al. Fingerprints in patients with coeliac disease and their relatives. *Br Med J.* 1972 Oct 21;4(5833):144-6.
4. David, TJ, et al. Dermal and epidermal ridge atrophy in celiac sprue. *Gastroenterology.* 1973 Apr;64(4):539-44.
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6. Cherill FA. Fingerprints and disease. *Nature* 166: 581. 1950.
7. Wendt GG. Krankheit in "weisse Linien" der fingerliesten. *Artzl. Forsch.* 6. 227; 1952 (referenced in 2).
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Lucky in Love

by Peter D'Adamo, ND, MIFHI

Because I attended a Catholic grammar school that was private and did not receive any state or government funding, we were often dispatched on extenuated and cheerless forays out into the public in a quest for its nickels and dimes. This usually included the sale of various candies or 'chance books' --a cluster of five or ten tickets which entered the owner into a drawing of some sort, for a variety of possible prizes.

Never mind that this same public (due to the limitations of spatial geography and the ambulatory capacities of a ten-year old) was already paying through a myriad of other schemes to keep their kids in this very same school. Typically after suitable introductions had been made and accompanied by sufficient eye-rolling and entreaties heavenward, the wallet would be procured and another book of chances sold. Usually, I'd take the opportunity to remind them of what a wise investment they had made, only to be greeted by the sobriquet "Sonny," and the dismissal of future possibilities with an off-hand "I've never won anything, and I'm not very lucky."

But then again, luck is often in the eyes of the beholder.

Just think. Your parents first needed to have come from genealogical lines that survived through all the plagues, wars and accidents of time. Second, they needed to be in physical proximity, so as to come into contact with each other. Third, they had to be attracted in such a manner as to stimulate (hopefully) the urge for procreation in each other. Fourth, they had to be in that particular mood at just the time when the team "up at bat" sperm and egg-wise was you. Fifth, the sperm that carried the genetic information from your father had to compete with millions of other sperm in a race that would make the New York City Marathon look like a trip to the store for a newspaper. Sixth, even upon winning, that sperm had to find an egg at just the exact time when it was ripe for fertilization. Finally, after fertilization, the embryo had to travel through the Fallopian tubes and implant in the uterus where it developed from the cluster of cells into something that would eventually grow to the point where it could take care of itself.

So who among us is unlucky?

Center News

- **Dr. Peter D'Adamo** has published his first medical textbook, *Fundamentals of Generative Medicine*. Envisioned as part of a three-volume series, and with over 800 pages of text, 100 unique illustrations and extensively referenced, *Foundations of Generative Medicine, Volume 1*, provides the basis and guidance for the true practice of personalized medicine. Dr. D'Adamo was the recent keynote speaker at the California Association of Naturopathic Physicians 2010 conference in Marina Del Ray, California.
- **Dr. Ginger Nash** recently presented at the New York Association of Naturopathic Physicians (NYANP) 2010 conference on our recent research in personalized medicine. Dr. Nash's presentation was very well received.
- **Dr. Ryan Partovi**, a recent graduate of Southwest College of Naturopathic Medicine has joined CPM as a resident. Dr. Partovi earned his undergraduate degree from the University of Texas and a Juris Doctor from the Southern Methodist University School of Law. He also completed two years of basic sciences coursework at St. George's University School of Medicine before deciding to pursue a career in naturopathic medicine. Dr. Partovi was first introduced to Dr. D'Adamo's work in 1999 while seeking answers to personal health issues and became passionate about sharing and teaching Dr. D'Adamo's work. After completing his graduate medical education at SCNM, Dr. Partovi began the first residency program of its kind in Generative Medicine at the Center for Personalized Medicine and the University of Bridgeport Health Sciences Center.
- **Doctors D'Adamo and Nash** will discuss personalized medicine and the science behind eating right for your type at a lecture in Hamden, Connecticut, on November 18. The event will be held at the Knights of Columbus Hall, 2630 Whitney Avenue, at 7:00 p.m. For more information, contact event sponsor, Thyme & Season (203) 407-8128.

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