Cookware Facts

Q: ***IF ONE WANTS TO COOK "GREASELESS," WHY NOT BUY "NON-STICK" PANS?***

A: A "non-stick" pan can cook with little oil, but there are disadvantages and hazards to using them. To start with, the coating wears off into the food, a little bit, every time you cook. Manufacturers tell you to dispose of the pan once its chipped, meaning you continually have to buy them over and over. Some sets of non-stick pans can be hundreds of dollars. This can get expensive over time.

If you are cooking on any chipped, non-stick pans, your food are directly exposed to the aluminum cooking surface… there is also a lot of controversy regarding consuming aluminum (more below).

If you read the back of a non-stick pan's label it will warn you not to have birds in the kitchen, as fumes released from an overheated non-stick coated pan can kill birds. Furthermore, the fumes can also give you "polymer fume fever." At 500ºF (6) different carcinogenic gases can be released from a non-stick pan. If inhaled, you can get flu-like symptoms, such as body aches, fever and nausea. A chemical found in non-stick pans called C-8 has also been linked to cancer in laboratory animals.

The last thing that touches our food in the cooking cycle is our cookware. Doesn't it make sense it should be clean and safe?

Q: I HAVE HEARD THAT ALUMINUM COULD BE HAZARDOUS TO YOUR HEALTH.
Why do they make cookware that permits food to come in contact with aluminum?

A: THERE IS A LOT OF SPECULATION THAT ALUMINUM CAUSES VARIOUS HEALTH AILMENTS.

The sale of aluminum cookware is prohibited in Germany, France, Belguim, Gr. Britain Switzerland, Hungary and Brazil. The FDA also forbids the use of aluminum utensils to store dairy products.

Aluminum is quite porous an the chemical reactions that take place while cooking make it more pitted with age. In addition, all vegetables cooked in aluminum produce hydroxide poison, which neutralizes the digestive juices, robbing them of their value to digest food, producing stomach and gastrointestinal trouble, such as stomach ulcers and colitis. Foods cooked in Anodized aluminum (hardened aluminum) have the same result.

Source experts are now stating that the way you cook your food and what you cook your food on CAN and is just as important as what you eat.

More than half (52 percent) of all cookware sold today is made of Aluminum, according to Cookware Manufacturers Association executive vice President Paul Uetzmann. But most of these aluminum pots and pans are coated with nonstick finishes or treated using a process that alters and hardens the structure of the metal. In the 1970s, Canadian researchers reported that the brains of Alzheimer?s disease victims contained abnormally high levels of aluminum. The studies stirred a controversy about whether aluminum is the cause or result of the disease. At the same time, many concerned consumers discarded their natural aluminum cookware.

Stephen Levick, M.D., from Yale University School of Medicine in Newhaven, Conn., wrote in a letter to the editor of the New England Journal of Medicine, out with my corroded aluminum pots.

Dr. Levick has thrown away his pots and pans. Researchers still are investigating the connection between aluminum and Alzheimer's disease. But according to Creighton Phelps, Ph.D., director of medical and scientific affairs at the Alzheimer's Association, much recent data support the theory that brains already damaged by Alzheimer?s disease may permit entry of abnormally high levels of aluminum.

Q: THERE ARE MANY BRANDS OF <u>STAINLESS STEEL COOKWARE</u> SOLD IN STORES. WHAT'S THE DIFFERENCES?

A: WHEN MAKING A BUYING DECISION ON COOKWARE, YOU NEED TO COMPARE (3) VERY IMPORTANT FEATURES: THE GRADE OF METAL, THE DISTRIBUTION OF HEAT. AND TEMPERATURE CONTROL.

Regarding the metal, most cookware sold in stores is an 18/10 grade of steel at best. Because of the softness of this grade of metal, when heated, it expands and the food sticks to the pan. You are then forced to cook with oil and the pan becomes difficult to clean. In addition the natural acids and salts contained in our foods can create a chemical reaction with inferior cooking surfaces.

Cookware sold in retail stores generally have a slab of aluminum or copper fused to the bottom of the pan. This gives good heat conduction, only on the bottom of the pot. Because of the uneven heat, one must constantly watch and stir the food or it scorches, doesn't cook uniformly and prolongs cooking time. In the end, you have to work harder to cook your foods.

Because the nutrition of our food can be damaged by high heat, temperature control becomes another important factor to consider when shopping for cookware. All our stoves and fridges have a means of controlling temperature, why doesn't our cookware have one? Without an accurate system to notify you when the internal temperature of your pan reaches a specific point, you'll always stuck in the kitchen, watching your pot doesn't boil over.

Some pans have steam vents, but if your vegetables are exposed to the high temperature of steam (232ϒ F), you will destroy the life giving properties of your food. Life begets life. So keep your food alive when you cook; below 200 degrees F.

Q: IS <u>GLASS COOKWARE</u> SUPERIOR TO OTHER TYPES OF COOKWARE?

A: It's fine for serving your food, but it's the very worst heat conductor of all cookware materials (even the manufacture admits that glass cookware has a cold spot in the center of the pan…). That means poor cooking results and unnecessary energy losses.
There are other limitations and inconveniences associated with glass cookware. It won't melt but it will break! If it is exposed to hot and cold, it can literally explode into thousands of tiny pieces. A quick reading of the instructions will alert you to these potential drawbacks.

Health Professionals are also concerned about the use of lead and cadmium in these pans. Boron and lead are used in making glass, enamel, and porcelain cookware. Studies have shown lead, a heavy metal, if consumed can cause neurological damage, especially in young children.

Q: IS CAST IRON COOKWARE SUPERIOR TO OTHER TYPES OF COOKWARE?

A: Cast Iron is the most Porous of all cookware full of carcinogenic heated oils. Also there is some concern about the excess of iron leaching into the food. Some iron is essential for carrying oxygen in the blood to organs and tissues, but too much is toxic. Excess iron accumulates in organs such as the heart, liver, joints, pancreas, and pituitary gland. If untreated, this accumulation can cause organ damage, and diseases such as heart attack, diabetes, cirrhosis of the liver, liver cancer, arthritis, and depression, and can even lead to premature death. People with iron overloads are misdiagnosed 67% of the time as having other disorders, including arthritis, diabetes, heart problems, liver/gallbladder disease, or various stomach disorders. Iron can not be excreted and, overtime, the metal accumulates to toxic levels in vital organs such as the liver, heart, brain and joints. Persons with high iron levels are at risk. **Iron overload symptoms include** the following:

* Chronic fatigue (the most common symptom)
* Joint pain/arthritis
* Loss of sex drive
* Impotence or early menopause
* Irregular heartbeat or heart problems
* Abdominal pain
* Weight loss
* Depression
* Change in skin color (i.e., jaundice, reddish, or gray olive)
* Elevated blood sugar

In Africa, the Bantus use iron pots and because the excess iron, it gets into their food and as a consequence it overloads the liver. This overload leads to death from cirrohsis of the liver, which is the same pathology as the alcoholic builds, but without the alcohol. This iron creates poisoning of the body just as too much of the everyday foods that overload and poison the body can poison the body.

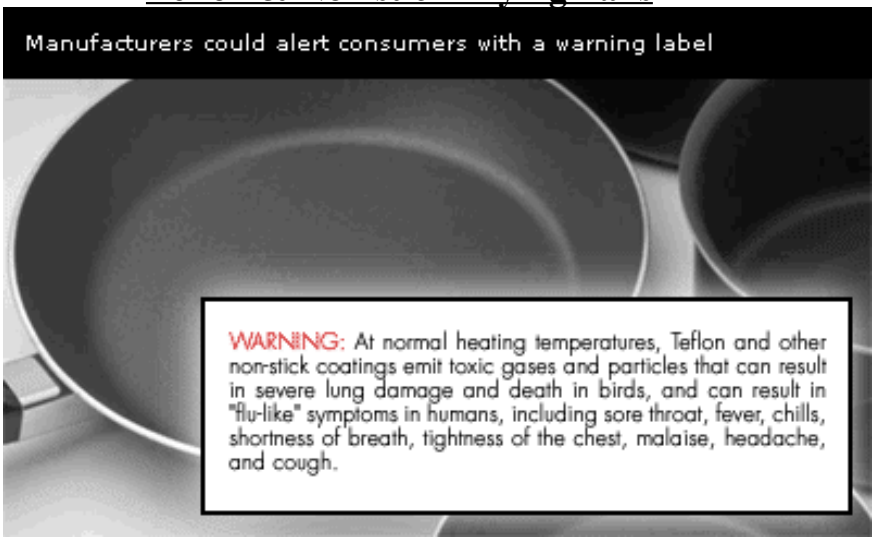
The red blood cell constitutes 5% iron in the blood. Some folks believe that cast iron pots are a reliable and safe source of iron, but this is misinformation. Our red blood cell is renewed and built from the elements of the earth through the roots of the plant kingdom and salt water, among reliable ones. **Excessive iron is toxic to humans**, because excess ferrous iron reacts with peroxides in the body, producing free radicals. Iron becomes toxic when it exceeds the amount of transferrin needed to bind free iron. In excess, uncontrollable quantities of free radicals are produced.

Iron uptake is tightly regulated by the human body, which has no physiologic means of excreting iron and regulates iron solely by regulating uptake. However, too much ingested iron can damage the cells of the gastrointestinal tract directly, and may enter the bloodstream by damaging the cells that would otherwise regulate its entry. Once there, it causes damage to cells in the heart, liver and elsewhere. This can cause serious problems, including the potential of death from overdose, and long-term organ damage in survivors.

Humans experience iron toxicity above 20 milligrams of iron for every kilogram of weight, and 60 milligrams per kilogram is a lethal dose. If iron intake is excessive iron overload disorders can sometimes result, such as hemochromatosis. Iron overload disorders require a genetic inability to regulate iron uptake; however, many people have a genetic susceptibility to iron overload without realizing it and without knowing a family history of the problem. For this reason, people should not take iron supplements unless they suffer from iron deficiency and have consulted a doctor. Blood donors are at special risk of low iron levels and are often recommended to supplement their iron intake.

The medical management of iron toxicity is complex. One element of the medical approach is a specific chelating agent called deferoxamine, used to bind and expel excess iron from the body in case of iron toxicity.

Teflon & Non stick Frying Pans



Warning: At normal heating temperatures, Teflon and other non-stick coatings emit toxic gases and particles that can result in severe lung damage and death in birds, and can result in flu-like symptoms in humans, including sore throat, fever, chills, shortness of breath, tightness of the chest, malaise, headache, and cough.

Nothing may stick to *Teflon*, but new research suggests that the byproducts of the heat-resistant coating may be sticking around in the environment for a long time. Researchers in Canada have discovered that heating *Teflon*--the coating used in non-stick frying pans--and other similar compounds releases potentially harmful chemicals, including some linked to the destruction of the ozone layer and others that may linger in the environment for years and years. The precise environmental and health impact of *Teflon* and similar heat-resistant coatings is uncertain, but the findings suggest that continued use of the compounds may contribute to the depletion of the ozone layer and global warming.

After ozone-depleting compounds called *chlorofluorocarbons* (CFCs) began to be replaced with alternative chemicals called *hydrochlorofluorocarbons* (HCFCs) and *hydrofluorocarbons* (HFCs), scientists began to notice a rise in levels of *trifluoroacetic acid* (TFA) in the atmosphere. It turns out that as the alternatives to CFC degrade in the atmosphere, they produce TFA, which persists in the environment over time and can be harmful to plants. But based on the amount of HFCs and HCFCs being used, Dr. Scott A. Mabury of the University of Toronto and colleagues realized that there was too much TFA in the environment to have been produced by these CFC alternatives alone. Mabury's team suspected that some of the extra TFA in the environment might be produced when *Teflon* and other so-called *fluoropolymers* are exposed to high temperatures. Besides *Teflon*, other fluoropolymers are used in ovens, engines, circuits and other devices exposed to extreme heat.

Heating *Teflon* and other fluoropolymers produces TFA and a wide range of other chemicals. Some of these include CFCs, which destroy ozone, and fluorocarbons, which may contribute to global warming by acting as "greenhouse" gases. Mabury noted that fluoropolymers also gave off larger versions of TFA that, like the smaller version, do not degrade in the environment. But it is possible that the larger compounds can make their way up the food chain, since fish can absorb the chemicals from water. Although regular-sized TFA does not seem harmful to people, several groups of researchers are investigating possible health effects of the larger versions, Mabury said. *Teflon* is the trade name for the polymer *polytetrafluoroethylene* (PTFE) used in electrical insulating tape; combustion engines; chemical apparatus and tubing designed to resist attack from most chemicals, and in non-stick frying pans and other cookware.

There have been stories about caged birds dying in kitchens after fires involving *Teflon* cookware, suggesting the emissions of toxic gases when this polymer is burned. This article is more serious because the researchers did not burn the *Teflon* but simply heated it. Presumably, typical cooking procedures would also heat the *Teflon* to the temperature range investigated by these researchers. Thus, this material that is perceived by most as being benign, could be a source of both significant indoor and outdoor air pollution. This is another nasty indication that the world of *organofluorine* compounds could be going the same way as their more famous cousins: the *organochlorine* compounds. In the latter case most of these products, such as organochlorine pesticides, solvents and PVC plastic (despite the toxic generating manufacturing processes that produce them) were perceived as benign.

However, they had several problems: They tended to be very persistent in the environment; they are fat soluble and resistant to normal detoxification processes in the liver; they accumulate and concentrate in body fat; the mother passes them on to the fetus through the placental membrane and then to the infant via breast milk. A number of them are endocrine disrupting chemicals (i.e. they interfere with the production or performance of hormones, which are the messengers produced in special glands to regulate body chemistry). When these substances are burned in any facility ranging from a back yard burner to a trash incinerator, they produce highly toxic byproducts including *dioxins* and *furans* (PCDDs and PCDFs). Twelve of these compounds (or families of compounds) were the subjects of the POPs (persistent organic pollutants) treaty signed in Stockholm by many countries around the world, including the US. The bottom line is that nature doesn't make persistent things. Both in our bodies and in the environment, natural processes are constantly building up and breaking down all the chemical components used.

Nature attempts to protect itself from persistent fat-soluble substances by converting them to water-soluble substances, which can then be excreted through the kidney. If this strategy fails then they are stored in our fat. In the case of persistent (or permanent) water soluble substances like fluoride or lead, the body will excrete as much as it can through the kidney and what it can't ends up largely in our bones. However, in the case of both fluoride and lead other more sensitive organs like the brain and pineal gland may also have mechanisms which allow their accumulation.

There are two forms of fluoride found in human plasma: *free* (or inorganic) fluoride and *bound* fluoride. *Perfluorooctanoic acid* (PFOA, *octanoic acid* fully saturated with 15 fluorine atoms)...constitutes about 20-30% of the nonionic fluoride in human plasma. This surface-active agent, which is a component of plasticizers, lubricants, wetting agents, emulsifiers and other products, appear to enter the body through contact with or ingestion of commercial products. It has a very long half-life (approx. 1.5 years) in human males. Thus the question raised by this new report in *Nature* is how many of the byproducts from heating *Teflon* are accumulating insidiously in our bodies like PFOA? Are any being passed onto the fetus? Will any of them turn out to be endocrine disrupters?

When you heat *Teflon* (PTFE) up to the sort of temperatures that you get in "state of the art" municipal waste incinerators (800°C) you get the formation of CFCs, the major greenhouse gas that has been banned as a refrigerant. When one considers the amount of clothing and fabric that is coated with PTFE (most artificial fibers described as "breathable") this could have major implications for waste incineration. Another aspect of heating PTFE in cooking utensils is the following: A standard method of producing an aerosol of ultra fine particles is to heat PTFE up to 480°C. This produces some gas-phase products, mainly HF (*hydrogen fluoride*). If PTFE is further heated up to 500°C other gas-phase products are produced, including *perfluoroisobutylene* and others, which are highly toxic. Ultrafine particles are defined as those below 0.1 microns (100nm) and it is being demonstrated that these have a toxicity all of their own, which seems to be associated with their high chemical reactivity (that, after all, is how we make *heterogeneous catalysts*!). It is appearing that the majority of the toxicity of particulate aerosols may be attributable to the ultra-fine fraction. This could have major implications for the use of *Teflon* (PTFE) coated cookware in the home and industry.