Are We Using the Wrong Pans?

Dr. Hulda Regehr Clark (1928-2009) was an independent naturopathic research scientist and author who searched for the cause of cancer for over fifteen years. She built a sound resonance device to detect particle-level quantities of parasites, heavy metals and pollutants that she concluded were the cause of most diseases including cancer. In the last book she wrote before she died, Hulda described the South polarization of human tissue that occurs due to metal accumulation and parasites. One of Hulda’s most provocative remarks about metal reminds us that we need to eliminate sources of toxic metal in our environment:

Each of us, whether sick or healthy, is full of heavy metals by the time we are old... Illness, including cancer, is a metal disease.

Pans that we use in our kitchens need to be made of hard metal that will not leach into the food that we cook.

Metal may be what former United States Secretary of Defense would call a known unknown. At a press conference on February 12, 2002, where he addressed the absence of evidence linking the government of Iraq with the supply of weapons of mass destruction to terrorist groups, Rumsfeld provided the following definitions:

**Known knowns**
There are known knowns; there are things we know that we know.

**Known unknowns**
There are known unknowns; that is to say, there are things that we now know we don’t know.

**Unknown unknowns**
But there are also unknown unknowns -- there are things we do not know we don’t know.

An Australian search engine for children called Kids.net.au has this definition for a metal:

1. A mixture containing two or more metallic elements or metallic and nonmetallic elements usually fused together or dissolving into each other when molten. Example: brass is an alloy of zinc and copper.

2. Any of several chemical elements that are usually shiny solids that conduct heat or electricity and can be formed into sheets.

The most important shiny metal you have in your home is the metal in the pans you use to cook. Cheap metal can leach metal molecules into food. This article explains why the metal in your pan may end up in your body.

Not everyone is asleep regarding the dangers of cheap stainless steel pans. Celebrity chefs Wolfgang Puck and Emeril Lagasse have each formed companies that sell reasonably-priced surgical stainless steel pans (Google: Wolfgang Puck or Emeril Lagasse and 18/10 stainless).
Metals: Low Electronegativity and High Electropositivity
In 1932, Dr. Linus Pauling (1901-1994), who has been called one of the most influential chemists in history, proposed a chemical property for elements called electronegativity. As a property of an atom in a molecule (and not a free atom), electronegativity describes an element's tendency to attract electrons. Pauling first proposed the property of electronegativity when he worked on the valence bond theory. Electropositivity is the opposite of electronegativity which means it is a measure of an element's ability to donate electrons.

What Does Electronegativity and Electropositivity Have to Do With Pans?
Metals that are strongly electropositive will donate electrons easily which means they are highly reactive. If metals donate electrons to components of the food you cook, the metal ion will be attached to the food you eat and deposited in your body's tissue. The metals that are most likely to donate electrons are those with a low number of valence electrons. Examples include:

<table>
<thead>
<tr>
<th>Element</th>
<th>Number of Valence Electrons</th>
<th>Notes (See: References)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Aluminum (Al)</td>
<td>3</td>
<td>Al is linked to Alzheimer's Disease</td>
</tr>
<tr>
<td>Copper (Cu)</td>
<td>2 or 3</td>
<td>Cu is linked to Schizophrenia</td>
</tr>
<tr>
<td>Nickel (Ni)</td>
<td>2</td>
<td>Ni is linked to cancer</td>
</tr>
</tbody>
</table>

Alkaline Forming Foods Metabolize and Leave Metals Behind
Alkaline forming foods obtain their name because hydroxide compounds are produced with magnesium (Mg), calcium (Ca) and potassium (K) that are left behind when the foods are metabolized.

In 1884, the Swedish chemist Svante Arrhenius defined a base as a compound that increases the concentration of Hydroxide (OH-) ions that are present when added to water. The foods that leave magnesium, calcium and potassium behind include:

- Citrus Fruit
- Green Vegetables
- Seaweed
- Green tea
- Sea Salt
- Coffee
- Wine
- Ginger

Magnesium, calcium and potassium are metals that share the same properties as aluminum, copper and nickel. Their classification as metals requires an understanding of the arrangement of elements on the Periodic Table of the Elements (see: Web Image below). They are highly reactive electropositive elements that donate electrons. The hydroxides formed from magnesium, calcium and potassium include:

- Magnesium hydroxide
- Calcium hydroxide
- Potassium hydroxide

If alkaline-forming foods are cooked in vessels made of highly reactive metals, these compounds may be in short supply due to metals donating ions.

Acid Forming Foods Metabolize and Leave Nonmetals Behind
Acid forming foods refers to the acid compounds the body will produce with Chloride (Cl), Phosphorus (P) and Sulfur (S) left behind when the foods are metabolized. Svante Arrhenius defined an acid as a compound that increases the concentration of Hydrogen (H+) ions that are present when added to water. The foods that leave chloride, phosphorus and sulfur behind include:

- Apple Cider Vinegar
- Peanut Butter
- Chocolate
- Meat
- Bread
- Eggs
- Black Tea
- Milk and Cheese
If you look at the Periodic Table of the Elements at the bottom of this page, you will see magnesium (Mg), calcium (Ca) and potassium (K) on the left in the section that is shaded blue. Chlorine, phosphorus and sulfur are in the section shaded yellow identifying them as nonmetals. Nonmetals do not donate electrons making them less reactive.

The acids formed from chlorine, phosphorus and sulfur include:

- Hydrochloric acid
- Phosphoric Acid
- Sulfuric Acid

If acid-forming foods are cooked in vessels made of highly reactive metals, these compounds may be in short supply due to metals donating ions.

**Digestive Disorders Affect 60-70 Million People in the U.S.**

The U.S. Department of Health and Human Services estimates that 60-70 million people in the United States suffer from digestive disorders including heartburn, constipation, hemorrhoids, irritable bowel syndrome, ulcers, gallstones, and inflammatory bowel diseases, including Crohn’s disease (which causes ulcers to form in the gastrointestinal tract).

A significant number of people with digestive problems may be in the dark about factors that contribute to their condition. For example, a shortage of hydrochloric acid (HCL) causes proteins or fat to digest too slowly and remain in the stomach too long. This causes discomfort from the fermentation and gas that is created. People with insufficient hydrochloric acid are also vulnerable to parasite problems. Stomach acid is required to digest parasitic cysts, and eggs.

**Conclusions:**

Eat foods that leave chloride, phosphorus and sulfur behind.

Buy 18/10 stainless that does not react with these nonmetal elements.

**Avoiding Aluminum, Copper or Nickel in Pans**

Caveat emptor is a Latin term that means *let the buyer beware*. The expression is from the 18th century and it is part of a longer statement:

Caveat emptor, quia ignorare non debuit quod jus alienum emit, or

Let a purchaser beware, for he ought not to be ignorant of the nature of the property which he is buying from another party.

If you want to keep metal out of the food that you cook, here are properties of pans that you should avoid:

- **Copper**
  
  Avoid copper even if the copper is on the exterior of the pan and the manufacturer promises a non-reactive interior. Copper can be recognized by its color.

- **Aluminum**
  
  Avoid aluminum even if the interior is lined with a non-stick surface. Aluminum pans are easy to recognize because they are extremely lightweight.

- **Nickel**
  
  Nickel is a component of cheap stainless steel called *nickel stainless*. When nickel is added to stainless steel it causes the steel to lose its magnetic property. Use a kitchen magnet to test your pans. If the magnet does not stick, your pan is made of cheap stainless that is high in nickel.

**What About Nonstick Pans?**

Non-stick pans are coated with materials that do not stick to foods that are heated. The following coatings are used in the manufacture of non-stick pans:
• **Polytetrafluoroethylene (PTFE)**  
PTFE was accidentally discovered in 1938 by a chemist who was attempting to create a refrigerant. Teflon, by Dupont, is the most famous brand name of PTFE. Teflon is considered to be safe based on an animal study conducted in 1955. Recently, Teflon off gas studied by the Environmental Working Group killed birds at temperatures as low as 325 degrees Fahrenheit.

• **Perfluorooctanoic acid (PFOA)**  
PFOA emits toxic fumes when you cook. In its draft risk assessment, the U.S. EPA (2005) concluded that evidence was suggestive that PFOA is carcinogenic in humans. In its review of that risk assessment, three of the four members of the EPA scientific advisory board concluded more strongly that PFOA was *likely to be carcinogenic in humans* (U.S. EPA 2006).

• **Nano-ceramic coating**  
New ceramic coatings are made of nanoparticles. The carbon-60 (C60) molecule, also called a nano particle, or buckyball, named in 1985, has the same geometric shape of a soccer ball. This molecule and others with a similar geometrical makeup of carbon atoms are called fullerenes. The following studies concludes that nanoparticles are dangerous to human health:

  • The March 10, 2006 issue of M.I.T.’s Technology Review Magazine reported that six Germans were hospitalized after using a nano product sold as a protective sealant for glass and ceramics. Seventy nine people who used the spray reported having breathing problems and coughing.

  • In December 2004, an environmental toxicologist named Dr. Eva Oberdorster presented her nanoparticle research at the American Chemical Society's annual meeting in Anaheim California. When she exposed nine largemouth bass to water containing buckyballs at concentrations of 500 parts per billion (the concentration level that is comparable to pollutant levels commonly found in port waters), she found severe damage in brain tissue of the aquatic species after 48 hours.

The brain tissue damage was in the form of lipid peroxidation, a condition leading to the destruction of cell membranes, which has been linked, in humans, to illnesses such as Alzheimer's disease. Oberdorster also found chemical markers in the liver indicating inflammation, which she said suggests a full-body response to the buckyball exposure.

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**Extras For Experts**

Even though your kitchen magnet is a helpful tool that will help you determine if your pans have too much nickel, human scientists have incomplete knowledge of the forces that hold the natural world together. This section contains details about magnetism that are beyond the scope of this article.

**Magnetism and Gravity are Natural Forces That Are Observed But Not Understood**

Quantum mechanics, also known as quantum physics, is a branch of science that deals with invisible energy. Recently, this area of science has also become known as particle physics.

Particle physicists have observed magnetism and gravity, but they do not have a complete understanding of why magnets or gravity works at an atomic level.

If you suspend a bar magnet from a string so it can turn freely, the magnet will align itself with Earth’s north and south magnetic poles. Because opposing magnetic poles attract, the magnet’s north pole will point toward Earth’s South Magnetic Pole and the magnet’s south pole will point toward the Earth’s North Magnetic Pole. Hikers will recognize this function belongs to a compass. The first compasses were pieces of a magnetic mineral called magnetite used by ancients who lived in Sumer, China, and Greece. Magnetite with a strong magnetic attraction was called lodestone and suspended so it could turn freely. Today's compasses contain magnetic strips that swing freely around a shaft.

**Physics and Chemistry Overlap**

In the 19th century, physics was known as natural philosophy that grew into the modern sciences of chemistry, biology, astronomy and geology. Of these,
chemistry has the closest relationship to physics. For example, chemistry's acidity and basicity are equivalent to North polarity and South polarity in physics:

- Alkaline = South Polarity (-)
- Acid = North Polarity (+)

When Hulda Clark said metals and parasites South polarize body tissues, this means the tissues are more alkaline.

**Notes:**
- In chemistry’s Arrhenius model for acids and bases, pH is a measure of the acidity or basicity (also known as alkalinity) of a solution. Solutions with a pH less than 7 are said to be acidic and solutions with a pH greater than 7 are basic or alkaline.
- Recall that an Arrhenius acid is a substance that forms Hydrogen ions (H+) in solution. An Arrhenius base is a substance that forms hydroxide ions (OH-) in solution.
- Parasites thrive in an alkaline environment.

**References**


2. The Cure and Prevention of All Cancers (2007), Hulda Regehr Clark


8. Epidemiologic Evidence on the Health Effects of Perfluorooctanoic Acid (PFOA), Kyle Steenland, Tony Fletcher, and David A. Savitz, Environ Health Perspect. 2010 August; 118(8): 1100-1108, Published online 2010 April 27. doi: 10.1289/ehp.0901827


**Web Image**